Summary Report

Setting Student Performance Standards on the Michigan *MI-Access* Participation, Supported Independence, & Functional Independence Science Assessment Instruments—Grades 5 & 8

Report by:

Questar Assessment, Inc.

The *MI-Access* assessment system is designed for students who are unable to take the regular state assessment, the Michigan Educational Assessment Program (MEAP), even with accommodations. These instruments have been developed over a several-year period by the Michigan Department of Education (MDE). Extensive information concerning the development, characteristics, and statewide implementation of these instruments can be found in various publications of the Department issued by the Office of Educational Assessment and Accountability (OEAA), and is available on request.

Two levels of this three-tiered system – Participation and Supported Independence – became operational statewide in the spring of 2002; student performance standards in English Language Arts (ELA) and Mathematics were established at that time and were applied to results for the past three testing periods. The content of these assessments was changed in 2006 to reflect the state's Extended Grade-Level Content Expectations for ELA and Mathematics, and performance standards were reestablished in May of 2007. The third level of the system, Functional Independence, became operational statewide for the first time in the fall of 2005. Performance standards for Functional Independence assessments for Grades 3-8 ELA and Mathematics were established during the winter of 2005; high school standards were set during the spring of 2006.

Development of assessments in the area of Science began in 2005, with field testing of assessment exercises for these assessments taking place in spring, 2007. The Science assessments were developed for Grades 5, 8, and 11 to comply with No Child Left Behind requirements that such assessments be established for at least one elementary, middle school, and high school grade. The new Science assessments in Grades 5 and 8 became operational statewide in the fall of 2007 (the Grade 11 assessments will become operational in spring, 2008). OEAA decided, with Technical Advisory Committee (TAC) approval, that it was necessary to establish the performance standards for these new operational assessments. Such standards were established for Grades 5 and 8 using a TAC- and OEAA-approved procedure on December 5 and 6, 2007, and panel recommendations for standards for these grade levels were approved by the State Board of Education later that month. This report summarizes the activities and procedures leading to the establishment of these student performance standards for the Grades 5 and 8 Science assessments included in the Participation, Supported Independence and Functional Independence levels of *MI-Access*.

The following activities were conducted beginning in mid-2007, continuing through the actual standards-setting sessions in December of 2007, in essentially three stages:

- Development, revision, and adoption of the implementation plan

- Generation of committee recommendations for the standards
- MDE and TAC review of the recommendations and State Board of Education adoption of the standards

Activities and outcomes of each of these stages are discussed below.

Development and Adoption of an Implementation Plan

Planning for the standard-setting activities began in the summer of 2007 with discussions among professional staff of OEAA and the state's contractor to MDE for *MI-Access* support services, Questar Assessment, Inc. (formerly BETA/TASA). These discussions led to three iterations of written outlines for the process to be followed for establishing the student performance standards. These draft plans were discussed with the OEAA TAC in September 2007, during which revisions were proposed and the plans ultimately approved. Based on the draft plans and TAC counsel, the implementation process was finalized in November. (The TAC-approved version of the implementation plan is available from OEAA.) The subsequent science standard-setting process for grades 5 and 8 was carried out consistent with the TAC-approved plan. Conduct of the sessions, data analyses, and state standards-adoption processes were parallel for both grades and all three student population assessments. Essentially identical procedures were followed for the science sessions summarized in this report as were used for the several earlier *MI-Access* ELA and Mathematics standard-setting sessions.

Generation of Committee Recommendations for the Standards

Prior to the standard-setting sessions, OEAA developed – with input from a range of Michigan stakeholders – three "achievement level labels" and corresponding draft performance-level descriptors (PLDs) to characterize student performance on *MI-Access*. The three Performance Categories used for each level of *MI-Access – Emerging*, *Attained*, and *Surpassed the Performance Standards* – were used for the Science assessments. These same performance labels are used on all other versions of these assessments in ELA and Mathematics and for the three student populations assessed by the *MI-Access* program. The draft PLDs for each *MI-Access* level guided the standard-setting panels. During and immediately after the sessions, panelists were asked to review, critique, amplify, edit, and otherwise revise the PLDs. The elementary, middle school, and high school PLDs, shown in Appendix **A,** will be used by OEAA in presenting the *MI-Access* results to various assessment audiences.

The primary events that led to the recommended standards were three standard-setting committee meetings held in Lansing on December 5 and 6, 2007. Each of the panels recommended performance standards for both grades (5 and 8) and for one of the student populations of the *MI-Access* system – Participation, Supported Independence, or Functional Independence.

Each panel met for two full days and followed essentially identical procedures; the agenda for their meetings is presented in Appendix **B**. To maximize comparability of sessions and resulting recommendations across grades and assessments, identical agendas, detailed facilitator scripts, and common corresponding overhead transparencies were used by facilitators for all sessions. The only differences among panel sessions related to the student population assessments addressed by the facilitators. All materials used for the December sessions were essentially identical to those used for

the earlier *MI-Access* standard-setting sessions; these had been reviewed by OEAA staff and the TAC prior to their use.

Standard-setting participants were selected from nominees made to the OEAA by school districts and various professional organizations and advocacy groups. Nominations were sought from all *MI-Access* district coordinators, from the state's Special Education Advisory Committee, and from various professional organizations; the call for panelists was also posted on the MDE web site. Panel members included classroom teachers (both special and general education), building-level administrators, parents, special education directors, and special education advocacy group representatives. An attempt was made to include a broad range of stakeholder representation on each panel. The majority of members of each panel were active, practicing educators. Approximately one-half of the panelists in each session had participated as panelists in previous *MI-Access* standard-setting sessions. A total of **44** panelists participated in the activities. Appendix **L** contains a list of all participants in the standard-setting activities according to the panel on which they served.

Panelists clearly understood that their role was that of an *advisory group* – to recommend a set of standards to MDE and the State Board of Education. The State Board of Education has the ultimate authority to actually establish or "set" the standards. It was the opinion of all session facilitators and of Carol Allman, a representative of the state TAC, who observed the sessions, that panelists well understood the tasks involved in recommending student performance standards and their role in same. Similarly, all panelists in all sessions attended to session instructions and appeared to conduct their work consistent with the tasks assigned.

All standard-setting sessions were facilitated by a member of the contractor's staff who was experienced in moderating standard-setting and other group decision-making sessions. Facilitators all followed the same agenda and used the same overhead transparency sequence and notes to lead their individual sessions. The three concurrent two-day sessions were all organized identically. Peggy Dutcher and Vince Dean from OEAA provided an overview of the *MI-Access* instruments and their content and scoring. A Questar facilitator presented a general introduction or overview of the standard-setting process and the three performance labels to be used. The panelists then broke into separate panels to begin their work; all subsequent sessions were held in the separate-panel forums outlined above. Multiple MDE/OEAA personnel were present for the sessions, but they served only as resource personnel and observers; they did not participate in the judgment process. In addition, a representative of the OEAA Technical Advisory Committee – Dr. Carol Allman – was present to observe the sessions; Dr. Allman observed portions of each of the three sessions and participated in a review of the data resulting from the sessions.

As recommended by the OEAA contractor and Questar, and approved by OEAA and the state's TAC, the general methodology used for all sessions was "item mapping." This method, initially proposed by CTB/McGraw-Hill and termed the "Bookmark Procedure™" (c.f., Mitzel, Lewis, Patz, & Green, 2001; Lewis, Green, Mitzel, Baum, & Patz, 1998), was chosen for several reasons. First, it is currently the most widely used method for setting performance standards for high-stakes K-12 educational assessments and is used in the majority of statewide testing programs for which student performance standards are determined by panels. Therefore, it is widely understood and researched by measurement professionals. Second, it is a procedure well-suited for assessments that contain multi-point exercises as are used for the *MI-Access* Participation and Supported Independence Science assessments. Finally and importantly, the item-mapping procedure was the methodology used for establishing standards for the majority of the MEAP (general education) assessments.

For the *MI-Access* Science standard setting, panelists were trained to examine all items/exercises, which were ordered in a review booklet from least- to most-difficult. For the Participation and Supported Independence levels of the assessment system, scoring and reporting is accomplished using simple raw score; that is, no scaling of these tests is done. For the Functional Independence assessments, a one-parameter (Rasch) latent-trait scale underlies the reporting of student scores. The Functional Independence items, therefore, were subjected to a Rasch analysis prior to standard setting, using the Winsteps computer program, Version 3.63.2 Linacre, 2006). All items were then ordered in the item-order booklets by grade using the resulting Rasch difficulty measure. Appendix **N** shows the item order data from which the ordered-item booklets were assembled. Each table shows by item: the sequence in which the item appeared in the review booklet (Seq), the number of the item in the operational test booklet (Item #), the item difficulty (Rasch Measure), and the standard error of the Rasch measure (Error).

The Rasch measure was used to determine not only the item sequence for standard setting, but also in determining the proficiency level cuts. It was the Rasch measure of the item-number cut that was used to establish the proficiency level cuts. Each raw score was then associated with the corresponding Rasch measure. Again, this procedure applied only to the Functional Independence assessments as the other two levels of the system are scored and reported using simple raw scores.

The assessments for the three student populations have differing numbers of score points. Participation has 15 exercises, each with a score-point range of 0 through 6, for a total possible raw score of 90. Supported Independence assessments are composed of 17 selected-response exercises, each scored from 0 through 4 for a total possible score of 68. The Functional Independence assessments are made up of 35 (Grade 5) or 40 (Grade 8) multiple-choice items. For the assessment of each student population, panelists progressed through the ordered-item booklet until they reached the point at which they believed a *threshold* student who minimally Attained the Standard should just more likely than not be able to answer this item/activity at the particular level of competence. That is, panelists placed a cut point at the activity/score point at which a student who answered correctly was just barely indicating performance that Attained the Standard. A similar process was then followed to establish the recommended cut point for the Surpassed the Standard level.

Each panel made three separate rounds of judgments of the standards. Extensive discussions by the panelists of their interim ratings took place following the first and second rounds. Panelists were urged to discuss their judgments and seek clarification of any misunderstandings. Panel discussions in all three sessions were animated, engaged, and on-task. To encourage panel interactions and additional consensus among the group, facilitators showed panelists their anonymous interim ratings compared with those of their peers. Following the first round of judgments, panelists were given a point-by-point list of the statewide "difficulty" values. For Functional Independence multiple-choice items, these data were the item *p*-values. For Participation and Supported Independence, these data were the percent of students scoring at or above each score point. These data are presented in Appendix **K** for each of the MI-Access Science assessments. Facilitators encouraged panelists to give these data no more weight than other considerations when making their subsequent recommendations.

Prior to the final round of ratings, panelists were also provided with anticipated statewide "impact" data – that is, the expected percents of students statewide who would receive *MI-Access* "scores" in each of the three performance categories. These percents were based on frequency distributions of all *MI-Access* assessments available for processing by the contractor as of December 1. Approximately 90% of the "complete" statewide data were available as of that date. Statewide summary data for the three assessments are provided in Appendix **J**; these data were not provided in this form to the panels,

but were the basis for determining the state "impact data" that were shown to the panels prior to Round 3 of their work. Panelists were informed of the limitations of these data (being based on large and representative, but less-than-complete, samples of students statewide), but were informed that they might wish to consider these data during their final round of recommendations. After panelists completed their final judgments, they each filled out a short evaluation questionnaire, asking their opinions of the process and their comfort with both the procedures used and their judgments.

Appendix **C** tables show the recommendations of each panelist by round of judgments for each of the three panels. Appendices **D** (Participation), **E** (Supported Independence), and **F** (Functional Independence) provide summary data of round by grade of ratings for each of the panels. Tabled in Appendices D through F are the means, medians, and standard deviations by round of judgments for both cuts (Attained and Surpassed), along with several measures of error associated with the process. These include the standard errors of the mean and median (the errors associated with the central tendency of the complete set of judges), the standard error of measurement for the assessment (SEM_{Test}), and an estimate of the combination of the standard errors of the test and the median of the judges ($SE_{Composite}$). These various estimates of error provide an indication of the likely amount of imprecision in the panelists' average judgments. As the summary data for the three sessions illustrate, over the course of the sessions, panelists attained some convergence in their judgments concerning the appropriate placement of the standards for the three assessments. However, members of all panels continued to have somewhat divergent opinions concerning the appropriate cut scores, even at Round 3 of the process.

Subsequent to the completion of the panel sessions, representatives of the contractor and OEAA reviewed all panel recommendations. As has been the case for all previous *MI-Access* sessions, Questar proposes that OEAA use the *median* panel recommendation for each cut. All data and related recommendations of cut scores were reviewed and approved by the TAC prior to submission of the final recommendations to the state Board of Education. Appendix **M** provides a list and display of minor adjustments to the Surpassed cut scores for Functional Independence. The appendix discusses considerations in making these adjustments and provides corresponding statewide outcome data.

Appendix **G** provides a graphic summary of the Round 3 recommendations by panel by grade. These graphs display the final sets of cut scores suggested by the panelists in each committee. Corresponding graphs were used to provide inter-round feedback to panelists during the sessions.

Appendix **H** displays the statewide percents of students whose *MI-Access* scores fell into the three performance categories. These data are contrasted in this graph with previously established standards in ELA and Mathematics. The graphed ELA and Mathematics percent are from the spring 2007 administration of the assessments. As a review of these plotted data indicate, the Science recommendations – made two years after the ELA and Mathematics standards were established and by separate panels of judges (though using procedures as comparable as possible) – yielded statewide data that appear to be very consistent with corresponding results for ELA and Mathematics.

A summary of the evaluation form completed by every participating panelist at the completion of the standard-setting sessions is presented in Appendix **I**. Across sessions, panelists generally rated all aspects of the sessions highly. They felt that the major activities of the sessions were addressed successfully; considered many pertinent elements in making their recommendations; showed increased understanding of the task across rounds of ratings; well understood the data provided to them; and were confident in their judgments by the end of the session.

Review of Recommendations and MDE/ SBOE Adoption of the Standards

All panel recommendations were shared with the state's national TAC for their counsel on December 10. The final OEAA recommendations, after consideration of TAC input, were presented to the State Board of Education at their December 11, 2007 meeting. Subsequent to the Board of Education's approval of the recommended standards, score reports containing the final standards were generated and distributed to all participating Michigan school districts.

Additional questions concerning the assessments, the procedures used for setting performance standards or the data resulting therefrom, or any aspect of the development or interpretation of the *MI-Access* assessments should be addressed to OEAA at the Michigan Department of Education.

<u>Appendix A:</u> Performance-Level Descriptors (PLDs) finalized by the standard-setting panels for each level of the *MI-Access* Assessments

ELEMENTARY SCIENCE – Participation

Grade Span	Emerging	Attained	Surpassed
Elementary **General Statement**	Based on the *Participation EBs,*[1] a student who is **emerging toward the performance standard** should typically, with considerable to moderate assistance, be able to…	Based on the *Participation EBs,* a student who has **attained the performance standard** should typically, with considerable to moderate assistance, be able to…	Based on the *Participation EBs,* a student who has **surpassed the performance standard** should typically, with moderate to limited assistance, be able to…
Elementary **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Respond to questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Respond to questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Respond to questions about the world based on observation and/or description
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Develop an awareness of the natural world
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Identify animals • Match parent/offspring • Identify parts of life cycles of familiar organisms	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Identify animals • Match parent/offspring • Identify parts of life cycles of familiar organisms	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Identify animals • Match parent/offspring • Identify parts of life cycles of familiar organisms

Elementary **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Identify attributes of common objects • Identify parts of electrical circuits • Recognize movement of objects • Identify characteristics of sounds • Identify how materials are useful	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Identify attributes of common objects • Identify parts of electrical circuits • Recognize movement of objects • Identify characteristics of sounds • Identify how materials are useful	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Identify attributes of common objects • Identify parts of electrical circuits • Recognize movement of objects • Identify characteristics of sounds • Identify how materials are useful
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify conservation routines • Identify where water is found/uses of water • Identify weather conditions	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify conservation routines • Identify where water is found/uses of water • Identify weather conditions	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify conservation routines • Identify where water is found/uses of water • Identify weather conditions

MIDDLE SCHOOL SCIENCE – Participation

Grade Span	Emerging	Attained	Surpassed
Middle School **General Statement**	Based on the *Participation EBs,* a student who is **emerging toward the performance standard** should typically, with considerable to moderate assistance, be able to…	Based on the *Participation EBs,* a student who **attained the performance standard** should typically, with moderate to minimal assistance, be able to…	Based on the *Participation EBs,* a student who **surpassed the performance standard** should typically, with minimal to no assistance, be able to…
Middle School **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Respond to questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Respond to questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Respond to questions about the world based on observation and/or description
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Develop an awareness of the natural world
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Identify plants/animals • Identify healthy foods • Associate senses with body parts	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Identify plants/animals • Identify healthy foods • Associate senses with body parts	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Identify plants/animals • Identify healthy foods • Associate senses with body parts

Middle School **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Identify attributes of common objects • Recognize movement of objects • Identify sources of sound • Identify light sources • Differentiate between common objects according to length, weight, or temperature	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Identify attributes of common objects • Recognize movement of objects • Identify sources of sound • Identify light sources • Differentiate between common objects according to length, weight, or temperature	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Identify attributes of common objects • Recognize movement of objects • Identify sources of sound • Identify light sources • Differentiate between common objects according to length, weight, or temperature
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify conservation/recycling routines • Identify where water is found/uses of water • Identify weather conditions	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify conservation/recycling routines • Identify where water is found/uses of water • Identify weather conditions	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify conservation/recycling routines • Identify where water is found/uses of water • Identify weather conditions

HIGH SCHOOL SCIENCE – Participation

Grade Span	Emerging	Attained	Surpassed
High School **General Statement**	Based on the *Participation EBs*, a student who is **emerging toward the performance standard** should typically, with considerable to moderate assistance, be able to…	Based on the *Participation EBs,* a student who **attained the performance standard** should typically, with moderate to minimal assistance, be able to…	Based on the *Participation EBs*, a student who **surpassed the performance standard** should typically, with minimal to no assistance, be able to…
High School **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Respond to questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Respond to questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Respond to questions about the world based on observation and/or description
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Develop an awareness of the natural world
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Identify characteristics of living things • Identify characteristics of animals • Identify plants/animals • Identify exercise routines • Identify some common healthy foods	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Identify characteristics of living things • Identify characteristics of animals • Identify plants/animals • Identify exercise routines • Identify some common healthy foods	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Identify characteristics of living things • Identify characteristics of animals • Identify plants/animals • Identify exercise routines • Identify some common healthy foods

High School **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Identify mixtures/components of mixtures • Identify attributes/properties of common objects • Identify electrical circuits • Recognize movement of objects • Identify sources of sound	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Identify mixtures/components of mixtures • Identify attributes/properties of common objects • Identify electrical circuits • Recognize movement of objects • Identify sources of sound	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Identify mixtures/components of mixtures • Identify attributes/properties of common objects • Identify electrical circuits • Recognize movement of objects • Identify sources of sound
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify conservation/recycling routines • Identify where water is found/uses of water • Identify appropriate clothing for weather conditions	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify conservation/recycling routines • Identify where water is found/uses of water • Identify appropriate clothing for weather conditions	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify conservation/recycling routines • Identify where water is found/uses of water • Identify appropriate clothing for weather conditions

ELEMENTARY SCIENCE – Supported Independence

Grade Span	Emerging	Attained	Surpassed
Elementary **General Statement**	Based on the *Supported Independence EBs,*[2] a student who is **emerging toward the performance standard** should typically, with considerable to moderate assistance, be able to…	Based on the *Supported Independence EBs,*[2] a student who **attained the performance standard** should typically, with moderate to minimal assistance, be able to…	Based on the *Supported Independence EBs,*[2] a student who **surpassed the performance standard** should typically, with minimal to no assistance, be able to…
Elementary **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Answer basic questions about the world based on observation and/or description • Identify simple devices	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Answer basic questions about the world based on observation and/or description • Identify simple devices	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Answer basic questions about the world based on observation and/or description • Identify simple devices
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Identify uses of technology • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Identify uses of technology • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify uses of technology • Develop an awareness of the natural world
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Differentiate between plants/animals • Match life cycles • Identify healthy foods • Identify basic requirements for all living things	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Differentiate between plants/animals • Match life cycles • Identify healthy foods • Identify basic requirements for all living things	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Discriminate between living/non-living • Identify characteristics of animals • Differentiate between plants/animals • Match life cycles • Identify healthy foods • Identify basic requirements for all living things

Elementary **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Identify attributes of common objects • Identify how materials are useful • Identify states of matter • Recognize movement of objects including parts of the body • Identify simple machines • Identify sources of light/shadow	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Identify attributes of common objects • Identify how materials are useful • Identify states of matter • Recognize movement of objects including parts of the body • Identify simple machines • Identify sources of light/shadow	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Identify attributes of common objects • Identify how materials are useful • Identify states of matter • Recognize movement of objects including parts of the body • Identify simple machines • Identify sources of light/shadow
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify conservation/recycling routines or materials • Recognize states/uses of water • Identify sources of safe vs. unsafe drinking water • Identify weather conditions • Identify the sun, moon, and Earth • Identify differences between day/night	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify conservation/recycling routines or materials • Recognize states/uses of water • Identify sources of safe vs. unsafe drinking water • Identify weather conditions • Identify the sun, moon, and Earth • Identify differences between day/night	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify conservation/recycling routines or materials • Recognize states/uses of water • Identify sources of safe vs. unsafe drinking water • Identify weather conditions • Identify the sun, moon, and Earth • Identify differences between day/night

MIDDLE SCHOOL SCIENCE – Supported Independence

Grade Span	Emerging	Attained	Surpassed
Middle School **General Statement**	Based on the *Supported Independence EBs,* a student who is **emerging toward the performance standard** should typically, with considerable to moderate assistance, be able to…	Based on the *Supported Independence EBs,* a student who **attained the performance standard** should typically, with minimal to no assistance, be able to…	Based on the *Supported Independence EBs,* a student who **surpassed the performance standard** should typically, with minimal to no assistance, be able to…
Middle School **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Identify simple devices • Answer questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Identify simple devices • Answer questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify simple devices • Answer questions about the world based on observation and/or description
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Identify science concepts in common activities • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Identify science concepts in common activities • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify science concepts in common activities • Develop an awareness of the natural world
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Discriminate between living/non-living • Identify characteristics of plants/animals • Sequence life cycles of plants • Sort food into groups • Associate senses with body parts • Match parent/offspring	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Discriminate between living/non-living • Identify characteristics of plants/animals • Sequence life cycles of plants • Sort food into groups • Associate senses with body parts • Match parent/offspring	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Discriminate between living/non-living • Identify characteristics of plants/animals • Sequence life cycles of plants • Sort food into groups • Associate senses with body parts • Match parent/offspring

Middle School **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Identify attributes of common objects • Identify changes/states in matter • Recognize movement of objects • Identify simple machines • Identify light sources	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Identify attributes of common objects • Identify changes/states in matter • Recognize movement of objects • Identify simple machines • Identify light sources	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Identify attributes of common objects • Identify changes/states in matter • Recognize movement of objects • Identify simple machines • Identify light sources
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify conservation routines • Identify safety precautions with water/uses of water • Identify weather conditions/sources of weather information • Identify differences between day/night	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify conservation routines • Identify safety precautions with water/uses of water • Identify weather conditions/sources of weather information • Identify differences between day/night	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify conservation routines • Identify safety precautions with water/uses of water • Identify weather conditions/sources of weather information • Identify differences between day/night

HIGH SCHOOL SCIENCE – Supported Independence

Grade Span	Emerging	Attained	Surpassed
High School **General Statement**	Based on the *Supported Independence EBs*, a student who is **emerging toward the performance standard** should typically, with considerable to moderate assistance, be able to…	Based on the *Supported Independence EBs,* a student who **attained the performance standard** should typically, with minimal or no assistance, be able to…	Based on the *Supported Independence EBs*, a student who **surpassed the performance standard** should typically, with minimal to no assistance, be able to…
High School **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Identify simple devices • Answer questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Identify simple devices • Answer questions about the world based on observation and/or description	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify simple devices • Answer questions about the world based on observation and/or description
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Identify advantages/risks of technology • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Identify advantages/risks of technology • Develop an awareness of the natural world	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify advantages/risks of technology • Develop an awareness of the natural world
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Identify characteristics of living things • Identify observable characteristics of animals • Differentiate between characteristics or parts of plants/animals • Sort food into groups • Identify plants/animals found within various ecosystems	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Identify characteristics of living things • Identify observable characteristics of animals • Differentiate between characteristics or parts of plants/animals • Sort food into groups • Identify plants/animals found within various ecosystems	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Identify characteristics of living things • Identify observable characteristics of animals • Differentiate between characteristics or parts of plants/animals • Sort food into groups • Identify plants/animals found within various ecosystems

High School **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Identify electrical circuits/hazards • Identify simple machines • Identify vibration as a source of sound	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Identify electrical circuits/hazards • Identify simple machines • Identify vibration as a source of sound	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Identify electrical circuits/hazards • Identify simple machines • Identify vibration as a source of sound
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify conservation routines or materials • Identify safety precautions with water/flow of water/uses of water • Identify weather conditions/weather safety • Identify differences between day/night	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify conservation routines or materials • Identify safety precautions with water/flow of water/uses of water • Identify weather conditions/weather safety • Identify differences between day/night	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify conservation routines or materials • Identify safety precautions with water/flow of water/uses of water • Identify weather conditions/weather safety • Identify differences between day/night

ELEMENTARY SCIENCE – Functional Independence

Grade Span	Emerging	Attained	Surpassed
Elementary **General Statement**	Based on the *Functional Independence EBs,*[3] a student who is **emerging toward the performance standard** should typically be able to…	Based on the *Functional Independence EBs,*[2] a student who **attained the performance standard** should typically be able to…	Based on the *Functional Independence EBs,*[2] a student who **surpassed the performance standard** should typically be able to…
Elementary **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Identify questions based on observation and/or description • Identify sources of scientific information	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Identify questions based on observation and/or description • Identify sources of scientific information	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify questions based on observation and/or description • Identify sources of scientific information
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Identify ways technology is used in everyday life	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Identify ways technology is used in everyday life	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify ways technology is used in everyday life
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Identify observable body parts of animals • Identify life cycles of familiar organisms • Identify the basic life requirements of plants and animals • Identify functions of plant parts • Identify how parents and their young look alike • Identify animal adaptations • Identify the effects of humans on the environment	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Identify observable body parts of animals • Identify life cycles of familiar organisms • Identify the basic life requirements of plants and animals • Identify functions of plant parts • Identify how parents and their young look alike • Identify animal adaptations • Identify the effects of humans on the environment	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Identify observable body parts of animals • Identify life cycles of familiar organisms • Identify the basic life requirements of plants and animals • Identify functions of plant parts • Identify how parents and their young look alike • Identify animal adaptations • Identify the effects of humans on the environment

Elementary **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Identify useful properties of materials • Identify mixtures/components of mixtures • Identify common physical changes in matter • Describe the motion of common objects • Describe the interaction of magnetic/non-magnetic materials • Identify simple machines used to change effort • Identify properties and sources of sounds • Identify sources of light/shadow	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Identify useful properties of materials • Identify mixtures/components of mixtures • Identify common physical changes in matter • Describe the motion of common objects • Describe the interaction of magnetic/non-magnetic materials • Identify simple machines used to change effort • Identify properties and sources of sounds • Identify sources of light/shadow	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Identify useful properties of materials • Identify mixtures/components of mixtures • Identify common physical changes in matter • Describe the motion of common objects • Describe the interaction of magnetic/non-magnetic materials • Identify simple machines used to change effort • Identify properties and sources of sounds • Identify sources of light/shadow
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify features of and changes in the earth's surface/types of earth materials • Identify routines related to conservation • Identify the states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify features of and changes in the earth's surface/types of earth materials • Identify routines related to conservation • Identify the states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify features of and changes in the earth's surface/types of earth materials • Identify routines related to conservation • Identify the states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions

MIDDLE SCHOOL SCIENCE – Functional Independence

Grade Span	Emerging	Attained	Surpassed
Middle School **General Statement**	Based on the *Functional Independence EBs*, a student who is **emerging toward the performance standard** should typically be able to…	Based on the *Functional Independence EBs*, a student who **attained the performance standard** should typically be able to…	Based on the *Functional Independence EBs*, a student who **surpassed the performance standard** should typically be able to…
Middle School **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Identify questions based on observation and/or description • Identify tools that aid in scientific investigation/measurement • Identify sources of scientific information	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Identify questions based on observation and/or description • Identify tools that aid in scientific investigation/measurement • Identify sources of scientific information	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify questions based on observation and/or description • Identify tools that aid in scientific investigation/measurement • Identify sources of scientific information
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Identify how science relates to the world around them • Identify ways technology is used in everyday life	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Identify how science relates to the world around them • Identify ways technology is used in everyday life	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify how science relates to the world around them • Identify ways technology is used in everyday life
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Recognize that living things are made of cells • Identify observable body parts and/or systems of animals • Classify organisms • Identify life cycles of flowering plants • Identify functions of plant parts • Identify how species may become extinct • Describe relationships among populations in ecosystems • Identify that organisms acquire energy from sunlight • Identify how humans benefit from plant/animal materials	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Recognize that living things are made of cells • Identify observable body parts and/or systems of animals • Classify organisms • Identify life cycles of flowering plants • Identify functions of plant parts • Identify how species may become extinct • Describe relationships among populations in ecosystems • Identify that organisms acquire energy from sunlight • Identify how humans benefit from plant/animal materials	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Recognize that living things are made of cells • Identify observable body parts and/or systems of animals • Classify organisms • Identify life cycles of flowering plants • Identify functions of plant parts • Identify how species may become extinct • Describe relationships among populations in ecosystems • Identify that organisms acquire energy from sunlight • Identify how humans benefit from plant/animal materials

Middle School **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Describe properties of objects/substances • Recognize that items consist of smaller particles • Identify simple electrical circuits • Describe common physical/chemical changes in matter • Identify common energy transformations • Describe the motion of common objects • Describe the interaction of magnetic/non-magnetic materials • Identify simple machines used to change effort • Recognize how sound travels through different media • Identify sources of light/shadow	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Describe properties of objects/substances • Recognize that items consist of smaller particles • Identify simple electrical circuits • Describe common physical/chemical changes in matter • Identify common energy transformations • Describe the motion of common objects • Describe the interaction of magnetic/non-magnetic materials • Identify simple machines used to change effort • Recognize how sound travels through different media • Identify sources of light/shadow	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Describe properties of objects/substances • Recognize that items consist of smaller particles • Identify simple electrical circuits • Describe common physical/chemical changes in matter • Identify common energy transformations • Describe the motion of common objects • Describe the interaction of magnetic/non-magnetic materials • Identify simple machines used to change effort • Recognize how sound travels through different media • Identify sources of light/shadow
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify features of and changes in the earth's surface using maps • Identify routines related to conservation • Identify states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions • Identify effects of pollution • Demonstrate awareness of the motion of the earth/moon	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify features of and changes in the earth's surface using maps • Identify routines related to conservation • Identify states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions • Identify effects of pollution • Demonstrate awareness of the motion of the earth/moon	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify features of and changes in the earth's surface using maps • Identify routines related to conservation • Identify states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions • Identify effects of pollution • Demonstrate awareness of the motion of the earth/moon

HIGH SCHOOL SCIENCE – Functional Independence

Grade Span	Emerging	Attained	Surpassed
High School **General Statement**	Based on the *Functional Independence EBs*,[2] a student who is **emerging toward the performance standard** should typically be able to…	Based on the *Functional Independence EBs*,[2] a student who **attained the performance standard** should typically be able to…	Based on the *Functional Independence EBs*, a student who **surpassed the performance standard** should typically be able to…
High School **Performance Level Descriptor**	**Constructing New Scientific Knowledge** Demonstrate a *limited* ability to: • Identify questions based on observation and/or description • Identify tools that aid in scientific investigation/measurement	**Constructing New Scientific Knowledge** Demonstrate a *basic* ability to: • Identify questions based on observation and/or description • Identify tools that aid in scientific investigation/measurement	**Constructing New Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify questions based on observation and/or description • Identify tools that aid in scientific investigation/measurement
	Reflecting on Scientific Knowledge Demonstrate a *limited* ability to: • Identify how science relates to the world around them	**Reflecting on Scientific Knowledge** Demonstrate a *basic* ability to: • Identify how science relates to the world around them	**Reflecting on Scientific Knowledge** Demonstrate a *consistent* ability to: • Identify how science relates to the world around them
	Using Life Science Knowledge Demonstrate a *limited* ability to: • Recognize that living things are made of cells • Identify observable body parts of animals • Classify organisms • Identify the basic life requirements of plants and animals • Identify how living things maintain a healthy balance • Identify how characteristics are passed on through generations • Describe relationships among populations in ecosystems • Identify how organisms acquire energy • Identify the effects of human activity on ecosystems	**Using Life Science Knowledge** Demonstrate a *basic* ability to: • Recognize that living things are made of cells • Identify observable body parts of animals • Classify organisms • Identify the basic life requirements of plants and animals • Identify how living things maintain a healthy balance • Identify how characteristics are passed on through generations • Describe relationships among populations in ecosystems • Identify how organisms acquire energy • Identify the effects of human activity on ecosystems	**Using Life Science Knowledge** Demonstrate a *consistent* ability to: • Recognize that living things are made of cells • Identify observable body parts of animals • Classify organisms • Identify the basic life requirements of plants and animals • Identify how living things maintain a healthy balance • Identify how characteristics are passed on through generations • Describe relationships among populations in ecosystems • Identify how organisms acquire energy • Identify the effects of human activity on ecosystems

High School **Performance Level Descriptor**	**Using Physical Science Knowledge** Demonstrate a *limited* ability to: • Classify common objects according to observable attributes • Identify useful properties of materials • Identify mixtures/components of mixtures • Recognize that items consist of smaller particles • Identify simple electrical circuits • Identify electrical hazards/how current is controlled in simple electrical circuits • Identify common energy transformations • Describe the forces exerted by magnets, electrically charged objects, or gravity • Identify machines used to change effort • Identify properties and sources of sounds • Identify how light interacts with matter	**Using Physical Science Knowledge** Demonstrate a *basic* ability to: • Classify common objects according to observable attributes • Identify useful properties of materials • Identify mixtures/components of mixtures • Recognize that items consist of smaller particles • Identify simple electrical circuits • Identify electrical hazards/how current is controlled in simple electrical circuits • Identify common energy transformations • Describe the forces exerted by magnets, electrically charged objects, or gravity • Identify machines used to change effort • Identify properties and sources of sounds • Identify how light interacts with matter	**Using Physical Science Knowledge** Demonstrate a *consistent* ability to: • Classify common objects according to observable attributes • Identify useful properties of materials • Identify mixtures/components of mixtures • Recognize that items consist of smaller particles • Identify simple electrical circuits • Identify electrical hazards/how current is controlled in simple electrical circuits • Identify common energy transformations • Describe the forces exerted by magnets, electrically charged objects, or gravity • Identify machines used to change effort • Identify properties and sources of sounds • Identify how light interacts with matter
	Using Earth Science Knowledge Demonstrate a *limited* ability to: • Identify features of and changes in the earth's surface/types of earth materials • Identify routines related to conservation/recycling • Identify the impact of human activity on the environment • Identify the states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions	**Using Earth Science Knowledge** Demonstrate a *basic* ability to: • Identify features of and changes in the earth's surface/types of earth materials • Identify routines related to conservation/recycling • Identify the impact of human activity on the environment • Identify the states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions	**Using Earth Science Knowledge** Demonstrate a *consistent* ability to: • Identify features of and changes in the earth's surface/types of earth materials • Identify routines related to conservation/recycling • Identify the impact of human activity on the environment • Identify the states/sources/uses of water • Identify weather conditions/seasonal changes/safety precautions

Appendix B – Agenda

MI-ACCESS SESSION AGENDA

Participation, Supported Independence, Functional Independence Science Assessments
Standards-Setting Sessions

Dec. 5 – MORNING

8:30 – 9:15 **Welcome, Introductions, Logistics** (Peggy Dutcher)
(*Large-Group session – all panels together*)

- Place of this activity in the overall *MI-Access* schedule
- Logistics – expenses/honoraria, schedule, problem-solving

Overview of *MI-Access* Assessment System (Vince Dean)

- *Current* Participation, Supported Independence, and Functional
- Independence Assessments
- Next steps for *MI-Access* Program

Current Status of MI-Access P/SI/FI Assessments & Standards (Vince Dean)

- Alignment of P/SI/FI with EGLCEs, EHSCE, and EB
- Performance Standards set for MI-Access P/SI/FI ELA and Math, and statewide im data for these
- Overview of MI-Access Science assessments
- How the MI-Access Science assessments are scored

9:15 – 10:30 **Setting Performance Standards – General Process** (Mike Beck)

- Agenda for the two days
- Delimit the panels' activities – "Ground rules"
- What does it mean to set "performance standards"?
- Overview of the general process of setting standards
- Process of placing cut scores to segment a continuum of performance
    1. Drawing a discrete cutoff (threshold students)
    2. Errors of classification in any measurement process
    3. Why multiple rounds are required
    4. Keys to making good judgments
    5. What happens *next* – panels as advisory, not decision-makers

(Break into separate sessions by level – Participation, Supported Independence, and Functional Independence)

10:45 – 11:45 **Definitions and Description of Performance Standards**
(panelists break into 3 individual groups, separately facilitated)

- Performance Level Descriptors developed by the state and the Science PLD Committee and their import/use
- What does is *mean* for a student to be described this way – What can these students *do*? What do they *know*?
- Generate comments by grade for each panel

11:45 – 12:15 **"Experience" the Assessments**
(*continued after lunch as necessary*)

- "Take" the two actual assessment on which performance standards will be set – answer questions, take notes
- Discuss the test – content, concerns, difficulty, "construct" issues

Dec. 5 – AFTERNOON

1:15 – 1:45 **"Experience" the Assessments (cont.)**
Continue as above

1:45 – 2:30 **Orientation to the Specific Standard-Setting Methodology**

- "Mechanics" of setting standards
- Judges' task
- Features of the procedure

2:30 – 3:15 **Preparation for Round 1 of Judgments**

- Reminders of key issues – threshold, PLDs, all *MI-Access* students
- Distribute materials and orient panelists to use
- What to do – mechanics of making judgments for all cuts
- Rules for judgments – anonymity, independence, security of materials
- Day 2 preview

3:30 – 5:00 (or until completion) **First Round of Judges' Work**

Panelists work independently, recommending standards for all *seven* grades at one time, turning in their rating sheets and leaving for the day when completed.

Dec. 6 – MORNING

8:30 – 8:45 Review of Round 1 Issues and Problems

- Questions/Observations of judges to the process in Round 1
- Clarification of general issues and "mechanics" of the process

8:45 – 10:45 Feedback & Discussion of Round 1 Judgments

- Round 1 feedback by grade – Graphic portrayal of panelists' judgments (anonymou
- Meaning of Round 1 judgments - distribution of cuts, median/mean cut
- Discussion of *WHY*'s for Round 1 (i.e., what led panelists to set their standards as they did? Problems, issues, confusions, rationales for preliminary standards)
- Discussion of selected items or score points on extremes and near the middle of t

Round 1 distribution of cuts

- Viewing the recommended standards across grade levels – do these make sens
- "Shaping" of panelists' considerations, focusing on critical considerations (threshold

performance, "should *vs*. will," PLDs, item rating procedural confusions, construct issues)

- Purpose of Rounds 2 & 3 – reflection, reconsideration, and comfort, not consensus
- Present statewide student performance data by activity (*task difficulty* values)
- What the data *mean* and why they are only minimally useful in setting standards
- Reminder of key considerations

11:00 – 12:15 (or completion) **Round 2 of Judges' Work**

Opportunity to reconsider and adjust Round 1 judgments for both tests

Dec. 6 – PM

1:15 – 2:45 Review of Round 2 Judgments

- Questions/Observations of judges on the process
- Feedback and discussions much like that for Round 1
- Projected "impact data" – implications of the Round 2 recommendations
- Discussion of impact data from the ELA and Mathematics assessments, and the desirability of maintaining some consistency
- Discussion of selected items or score points

3:00 – 3:30 Preparation for Final Judgments

- Evaluation forms
- Questions, reminders, wrap-up/thanks

3:30 – 4:30 (*or until completion*) **Final Round of Judgments & Evaluation**

(panelists depart as they finish work and turn in all materials and their evaluation forms)

Appendix C – Results by Round

Judge Recommendations By Round
Participation - Science

Grade 5

	Attained			Surpassed		
Judge	**1**	**2**	**3**	**1**	**2**	**3**
1	33	32	23	53	62	76
2	23	21	24	24	65	75
3	26	23	26	65	61	70
4	47	15	23	85	85	75
5	28	26	23	60	60	75
6	37	26	24	61	62	75
7	47	42	24	85	73	75
8	49	44	28	70	64	75
9	23	28	24	74	65	75
10	34	34	30	77	75	77
11	22	34	27	42	61	75
12	21	24	24	75	75	75
13	35	20	25	72	40	75
14	35	28	26	62	75	75
15	30	28	26	63	75	75

Grade 8

	Attained			Surpassed		
Judge	**1**	**2**	**3**	**1**	**2**	**3**
1	19	32	23	81	70	78
2	23	34	28	51	70	73
3	25	24	23	44	61	76
4	25	12	23	71	44	78
5	26	27	23	62	60	78
6	33	27	28	59	50	78
7	33	40	28	69	79	78
8	34	36	28	66	70	78
9	37	28	25	70	70	75
10	37	28	25	70	71	76
11	40	35	28	77	68	78
12	40	32	25	79	77	77
13	42	30	27	69	60	78
14	42	23	23	76	78	78
15	44	28	23	76	72	77

Judge Recommendations By Round
Supported Independence - Science

Grade 5

	Attained			Surpassed		
Judge	**1**	**2**	**3**	**1**	**2**	**3**
1	45	33	34	51	61	61
2	26	53	44	53	62	62
3	23	35	35	47	60	61
4	28	25	31	51	62	54
5	12	33	38	52	54	58
6	32	32	34	63	63	63
7	34	36	41	59	63	63
8	32	34	38	64	62	62
9	24	33	34	51	51	51
10	17	54	54	61	63	62
11	32	44	44	50	62	62
12	30	32	32	53	56	60
13	29	31	37	48	60	60
14	35	41	41	63	63	63

Grade 8

	Attained			Surpassed		
Judge	**1**	**2**	**3**	**1**	**2**	**3**
1	58	45	38	68	61	56
2	27	55	46	48	62	58
3	29	39	42	46	58	58
4	36	28	33	49	57	52
5	20	36	36	42	49	56
6	27	27	35	56	56	56
7	41	50	50	54	62	62
8	41	41	42	58	56	58
9	27	45	39	45	54	54
10	22	49	54	38	61	61
11	35	46	46	53	58	58
12	34	31	28	47	50	58
13	34	44	33	56	60	60
14	36	36	36	62	62	62

Judge Recommendations By Round
Functional Independence - Science

Grade 5

	Attained			Surpassed		
Judge	**1**	**2**	**3**	**1**	**2**	**3**
1	11	25	19	23	29	27
2	16	17	17	28	28	29
3	7	19	19	18	26	30
4	15	15	16	23	26	27
5	22	21	21	28	31	31
6	16	20	20	25	25	27
7	18	18	18	29	29	29
8	12	20	16	23	30	30
9	22	21	17	29	29	33
10	16	18	18	23	24	27
11	20	20	15	25	25	25
12	11	16	18	28	28	27
13	12	15	19	27	24	27
14	11	18	19	18	25	27

Grade 8

	Attained			Surpassed		
Judge	**1**	**2**	**3**	**1**	**2**	**3**
1	15	24	20	31	35	31
2	19	20	20	29	29	31
3	15	16	16	22	24	31
4	14	17	18	31	31	31
5	21	24	24	33	34	35
6	25	25	25	33	33	33
7	14	19	18	32	32	31
8	13	19	17	25	33	33
9	32	25	20	38	31	31
10	12	18	19	24	27	29
11	19	21	17	27	27	27
12	19	21	21	31	31	31
13	13	14	19	27	29	30
14	11	19	20	19	30	31

Appendix D – Summary Statistics – Participation

MI-Access Participation - Science Grade 5

Item Difficulty Sequence Cuts (Maximum Activity Score = 90)

	Attained			Surpassed		
	Median	Mean	SD	Median	Mean	SD
Round 1	33	32.7	9.3	65	64.5	16.0
Round 2	28	28.3	7.9	65	66.5	10.5
Round 3	**24**	25.1	2.0	**75**	74.9	1.5
Final	**24**			**75**		

Round 3 Summary Statistics

	Attained	Surpassed
Number of Judges	15	15
SE_{Mean}	0.5	0.4
SE_{Median}	0.7	0.5
SEM (Test)	1.3	1.3
SE_{Median} + SEM	2.0	1.8

Percent of Students by Performance Category

	Emerging	Attained	Surpassed
Round 1	45	33	22
Round 2	44	34	22
Round 3	**42**	**46**	**13**

MI-Access Participation - Science Grade 8

Item Difficulty Sequence Cuts (Maximum Activity Score = 90)

	Attained			Surpassed		
	Median	Mean	SD	Median	Mean	SD
Round 1	34	33.3	8.0	70	68.0	10.4
Round 2	28	29.1	6.6	70	66.7	10.0
Round 3	**25**	25.3	2.3	**78**	77.1	1.5
Final	**25**			**78**		

Round 3 Summary Statistics

	Attained	Surpassed
Number of Judges	15	15
SE_{Mean}	0.6	0.4
SE_{Median}	0.7	0.5
SEM (Test)	1.3	1.3
SE_{Median} + SEM	2.0	1.8

Percent of Students by Performance Category

	Emerging	Attained	Surpassed
Round 1	50	33	18
Round 2	47	35	18
Round 3	**45**	**42**	**14**

Appendix E – Summary Statistics – Supported Independence

MI-Access Supported Independence - Science Grade 5

Item Difficulty Sequence Cuts (Maximum Activity Score = 68)

	Attained			Surpassed		
	Median	Mean	SD	Median	Mean	SD
Round 1	30	28.5	8.1	53	54.7	6.0
Round 2	34	36.9	8.3	62	60.1	3.8
Round 3	**38**	38.4	6.1	**62**	60.1	3.6
Final	**38**			**62**		

Round 3 Summary Statistics

	Attained	Surpassed
Number of Judges	14	14
SE_{Mean}	1.6	1.0
SE_{Median}	2.0	1.2
SEM (Test)	1.3	1.3
SE_{Median} + SEM	3.3	2.5

Percent of Students by Performance Category

	Emerging	Attained	Surpassed
Round 1	23	38	40
Round 2	29	49	22
Round 3	**35**	**43**	**22**

MI-Access Supported Independence - Science Grade 8

Item Difficulty Sequence Cuts (Maximum Activity Score = 68)

	Attained			Surpassed		
	Median	Mean	SD	Median	Mean	SD
Round 1	34	33.4	9.6	51	51.6	8.1
Round 2	43	40.9	8.4	58	57.6	4.3
Round 3	**39**	39.9	7.2	**58**	57.8	2.9
Final	**39**			**58**		

Round 3 Summary Statistics

	Attained	Surpassed
Number of Judges	14	14
SE_{Mean}	1.9	0.8
SE_{Median}	2.4	1.0
SEM (Test)	1.4	1.4
SE_{Median} + SEM	3.8	2.4

Percent of Students by Performance Category

	Emerging	Attained	Surpassed
Round 1	25	34	42
Round 2	41	33	26
Round 3	**34**	**40**	**26**

Appendix F – Summary Statistics – Functional Independence

MI-Access Functional Independence Science Grade 5

Item Difficulty Sequence Cuts (Maximum Activity Score = 35)

	Attained			Surpassed		
	Median	Mean	SD	Median	Mean	SD
Round 1	16	14.9	4.5	25	24.8	3.7
Round 2	19	18.8	2.7	27	27.1	2.3
Round 3	**18**	18.0	1.7	**27**	28.3	2.1
Final* (Item Sequence #)	**18***			**28***		
Final (Raw Score)	**20**			**24**		

Round 3 Summary Statistics

	Attained	Surpassed
Number of Judges	14	14
SE_{Mean}	0.4	0.6
SE_{Median}	0.6	0.7
SEM (Test)	1.1	1.1
$SE_{Composite(Median + SEM)}$	1.3	1.3

Percent of Students by Performance Category

	Emerging	Attained	Surpassed
Round 1	32	21	47
Round 2	46	21	33
Round 3	46	21	33
Final	46	27	27

* See page 5 and Appendix M of this report for a discussion of adjustments approved by the State Board of Education to the Round 3 recommendations of the panel.

MI-Access Functional Independence Science Grade 8

Item Difficulty Sequence Cuts (Maximum Activity Score = 40)

	Attained			Surpassed		
	Median	Mean	SD	Median	Mean	SD
Round 1	15	17.3	5.8	30	28.7	5.0
Round 2	20	20.1	3.4	31	30.4	3.0
Round 3	**20**	19.6	2.5	**31**	31.1	1.9
Final*	**20***			**33***		
(Item Sequence #) Final (Raw Score)	**21**			**25**		

Round 3 Summary Statistics

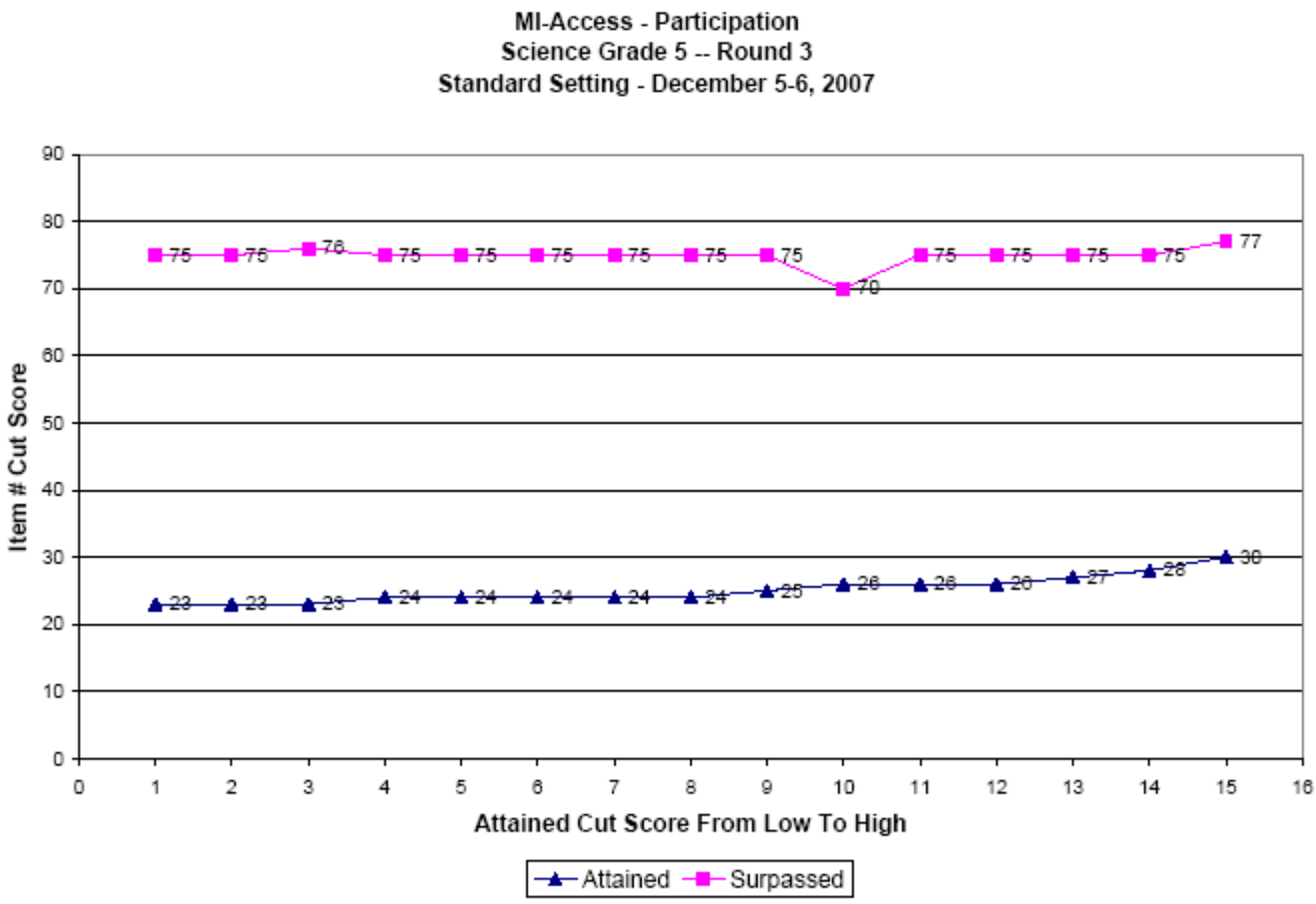
	Attained	Surpassed
Number of Judges	14	14
SE_{Mean}	0.7	0.5
SE_{Median}	0.8	0.6
SEM (Test)	1.2	1.2
$SE_{Composite(Median + SEM)}$	1.5	1.4

Percent of Students by Performance Category

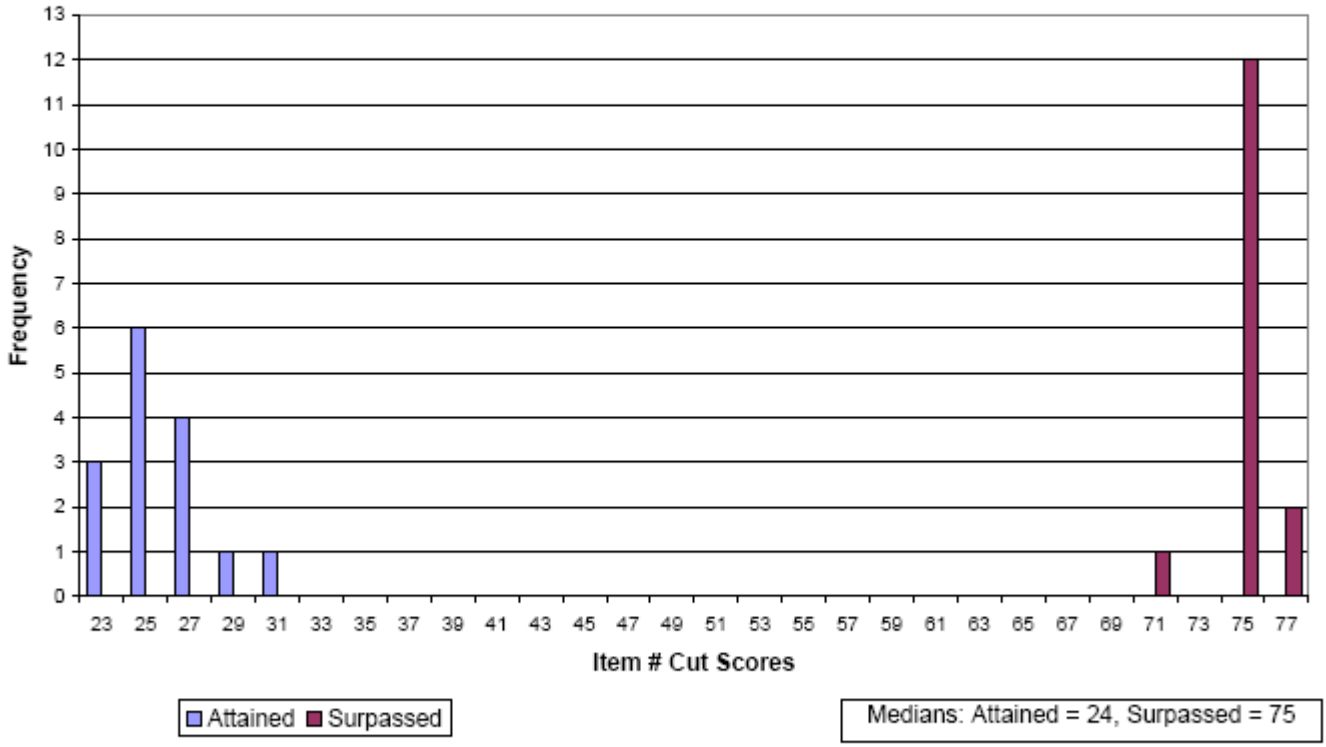
	Emerging	Attained	Surpassed
Round 1	36	26	38
Round 2	50	18	32
Round 3	50	18	32
Final	50	23	27

* See page 5 and Appendix M of this report for a discussion of adjustments approved by the State Board of Education to the Round 3 recommendations of the panel.

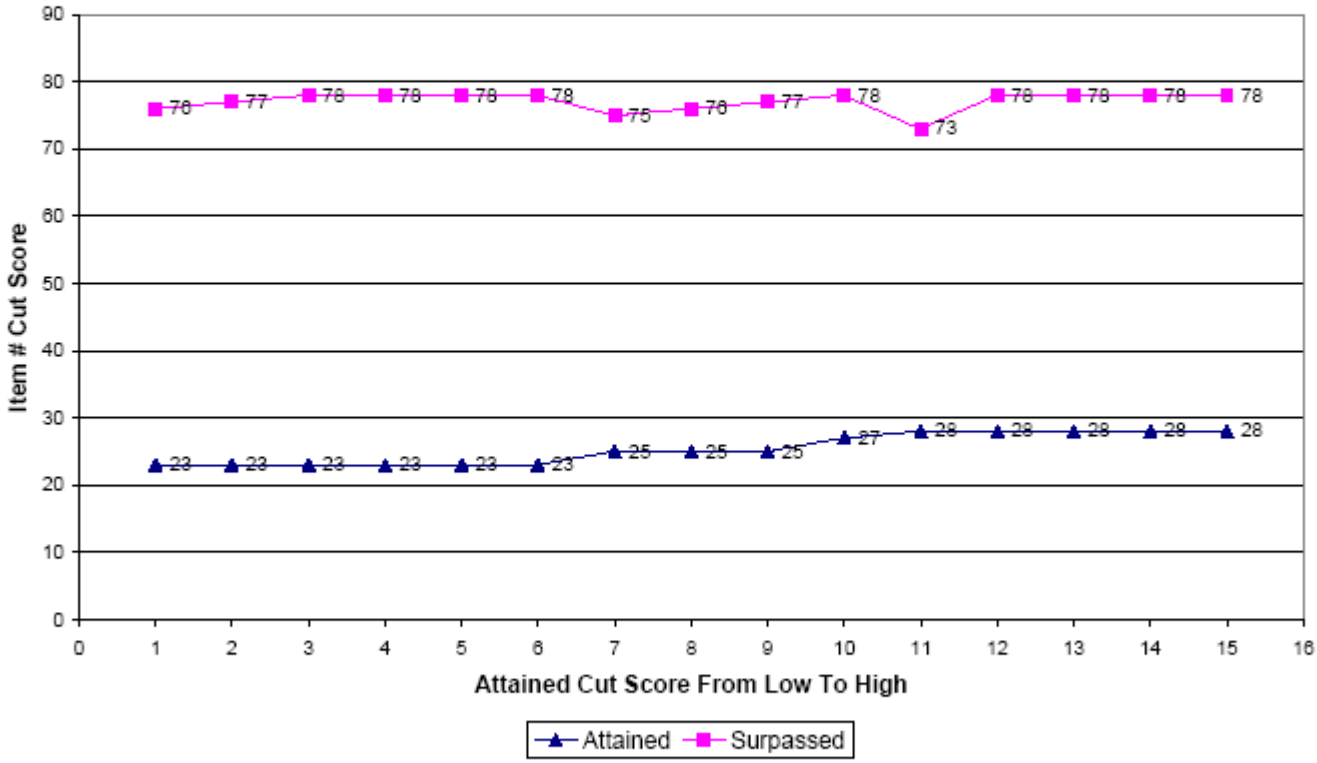
Appendix G – Round 3 Graphs of Panel Recommendations by Grade & Cut Score

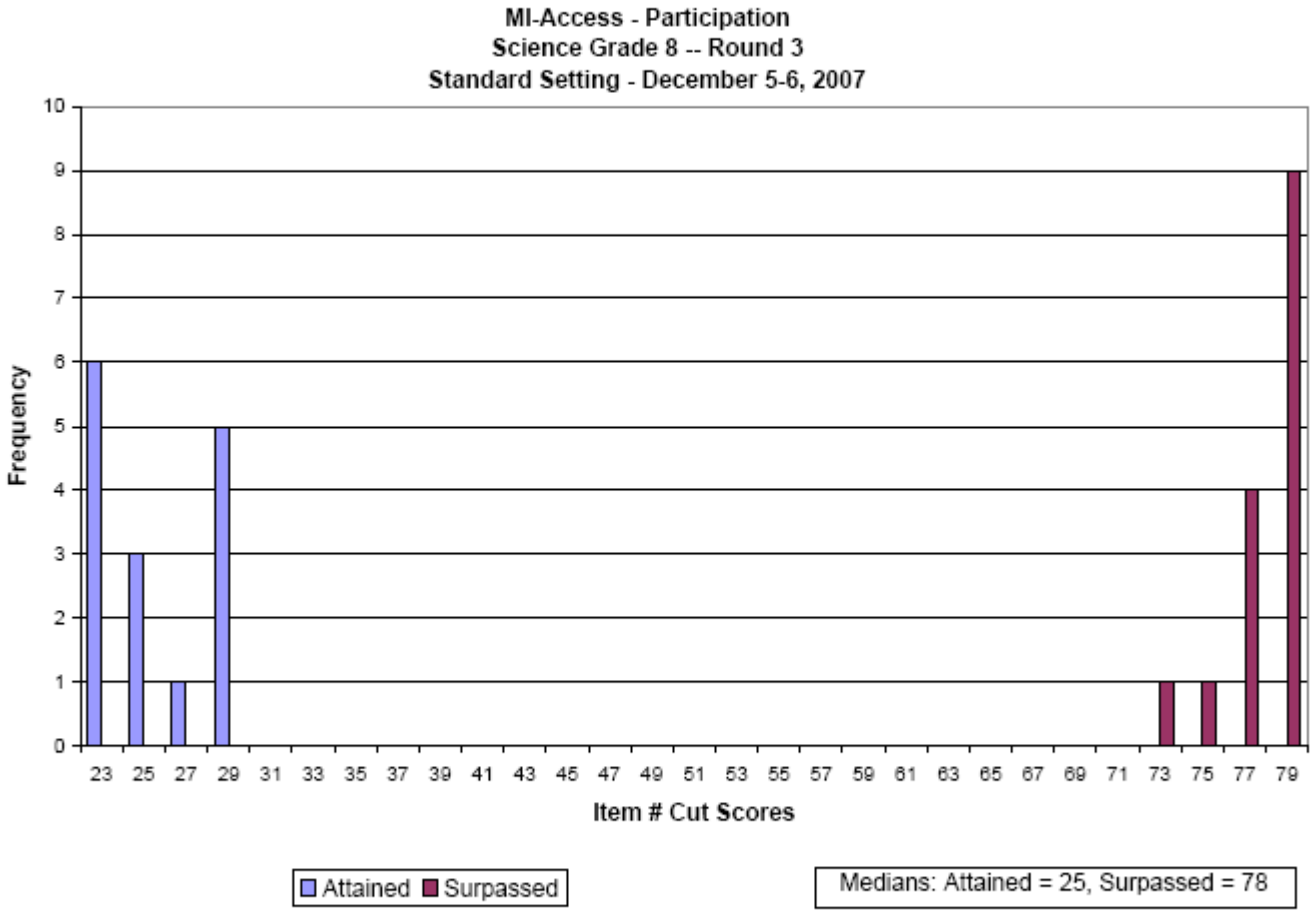


MI-Access - Participation
Science Grade 5 -- Round 3
Standard Setting - December 5-6, 2007

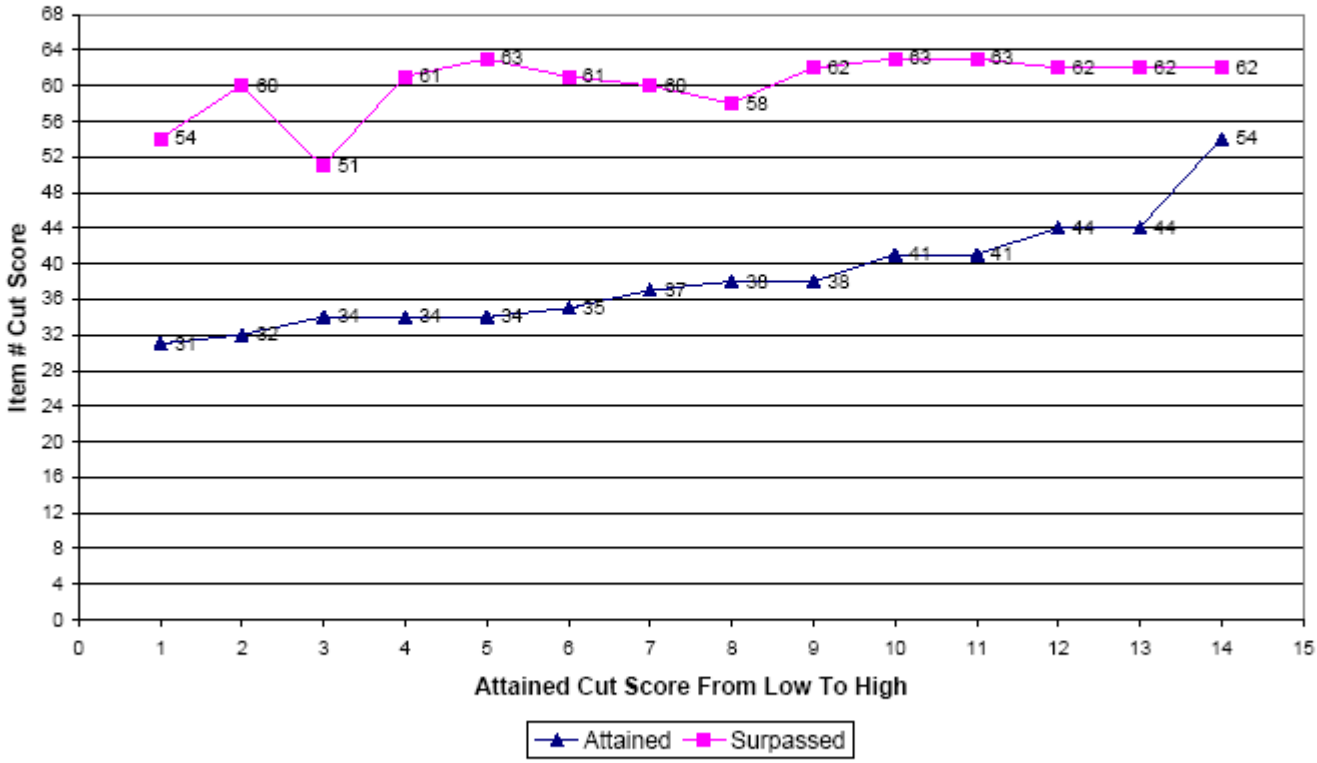


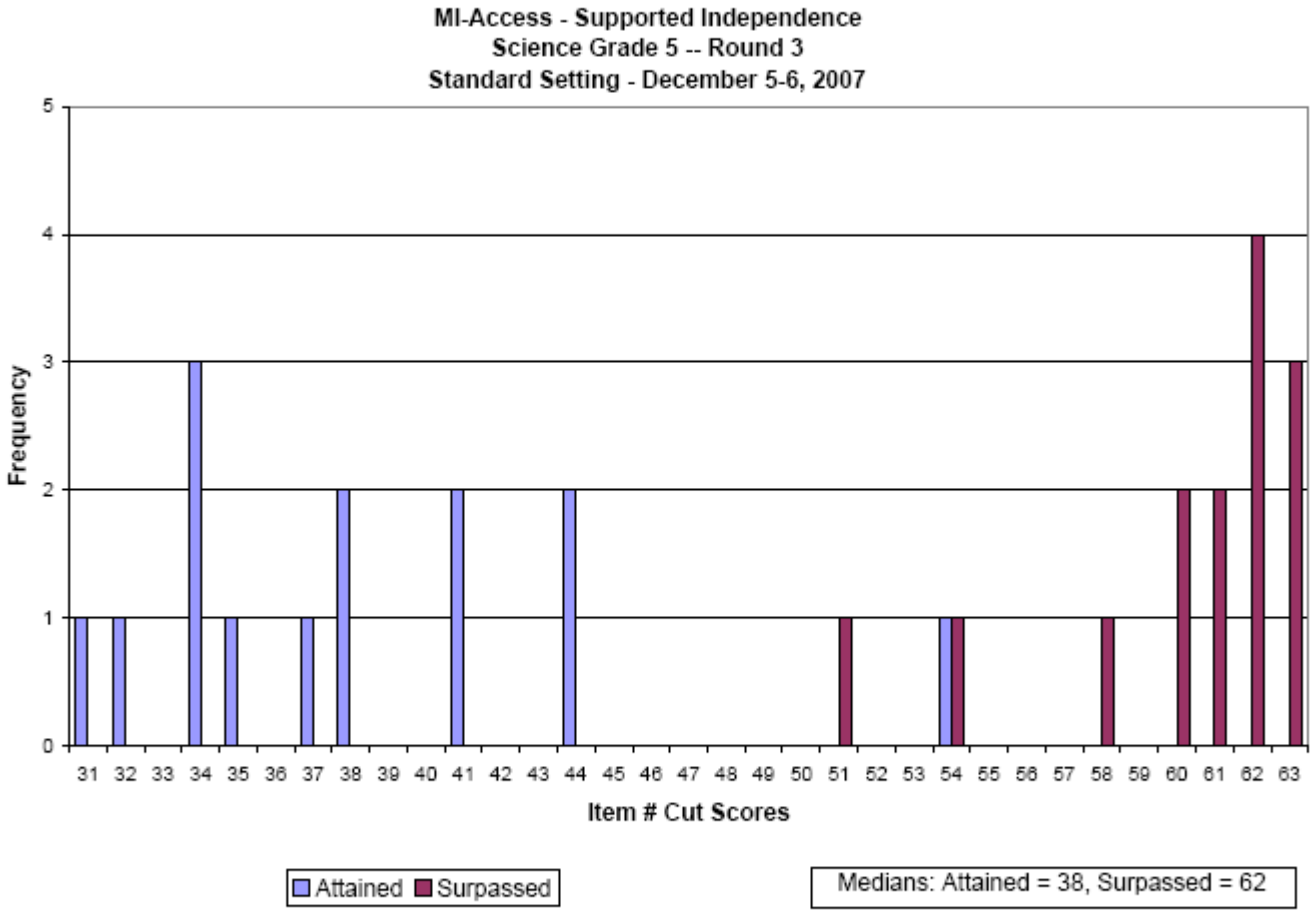
MI-Access - Participation
Science Grade 8 -- Round 3
Standard Setting - December 5-6, 2007



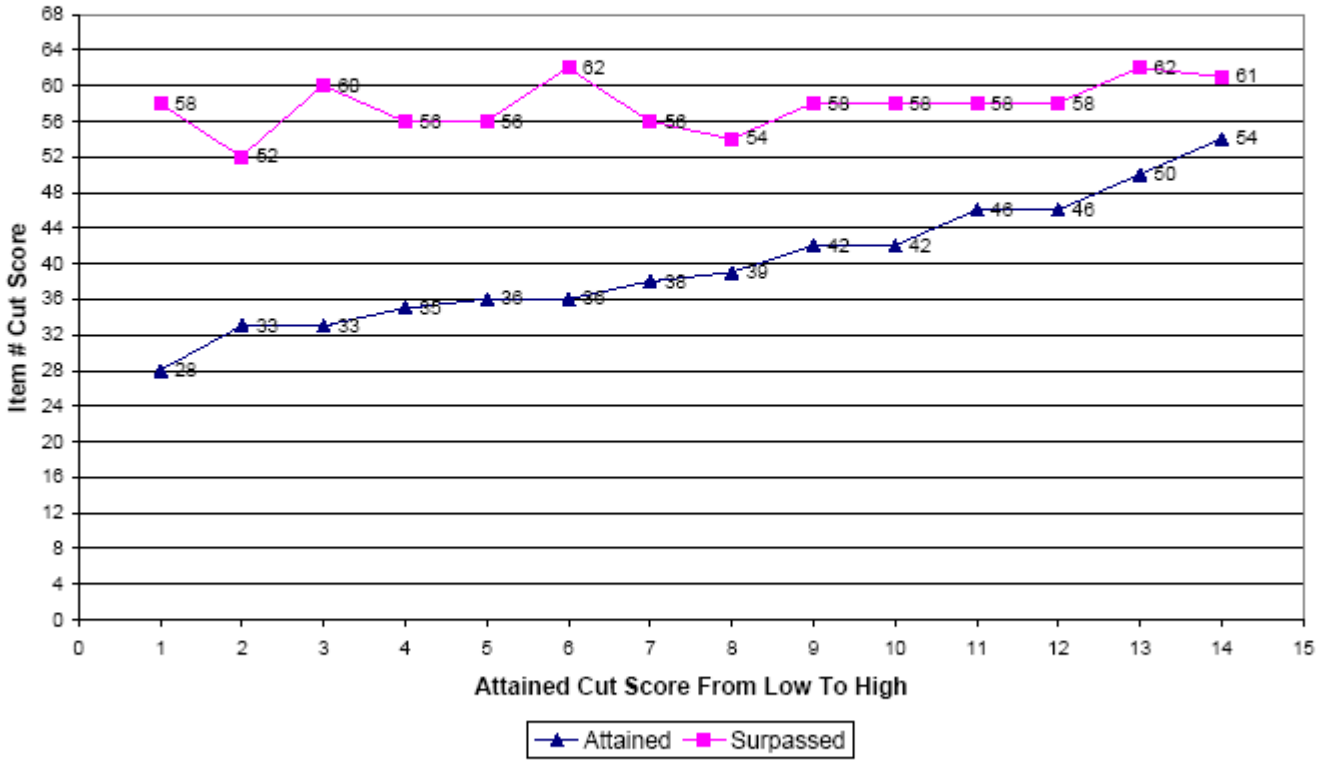

MI-Access - Participation
Science Grade 8 -- Round 3
Standard Setting - December 5-6, 2007
Frequency
0
1
2
3
4
5
6
7
8
9
10
23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79
Item # Cut Scores
Attained
Surpassed
Medians: Attained = 25, Surpassed = 78

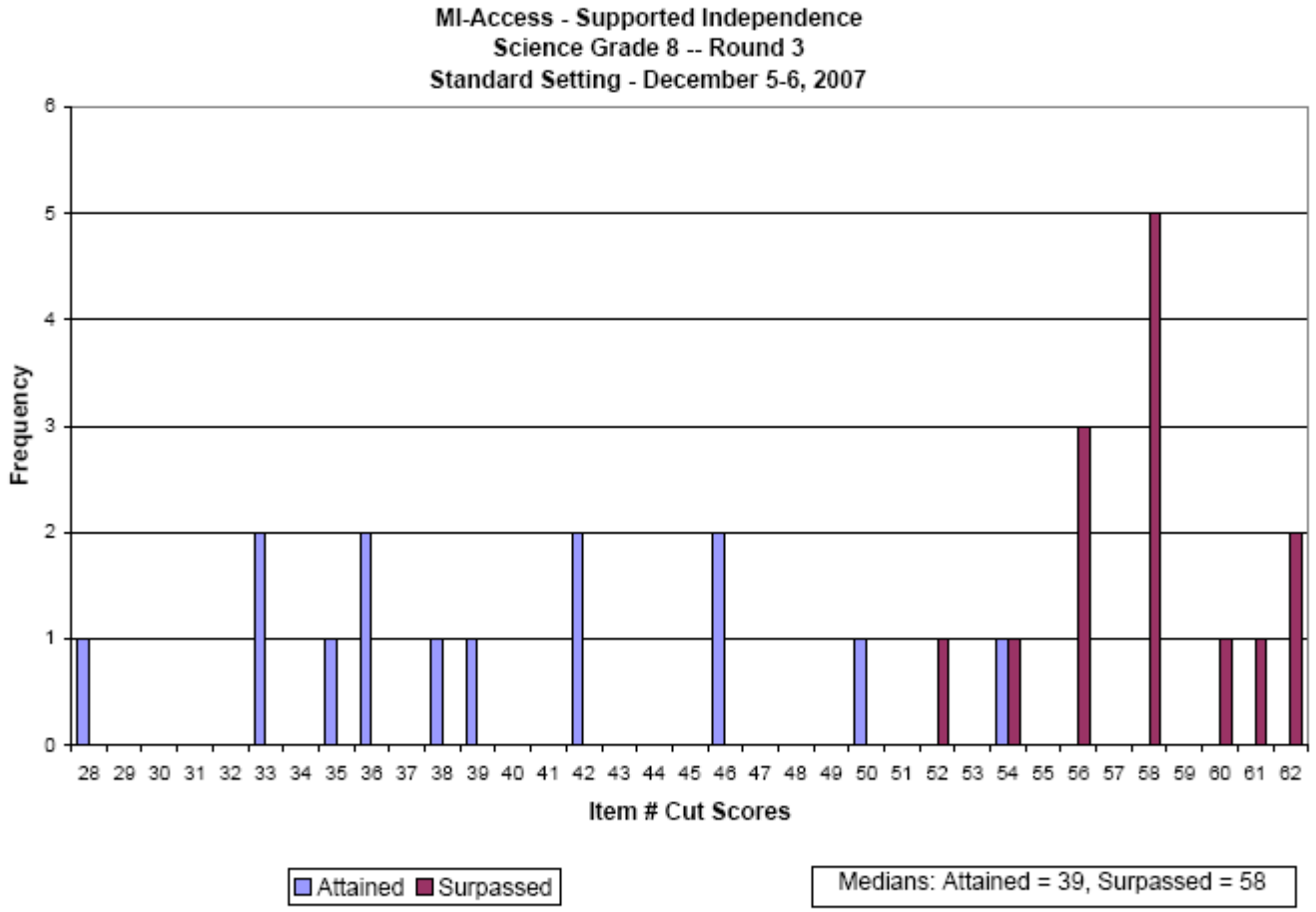
MI-Access - Supported Independence
Science Grade 5 -- Round 3
Standard Setting - December 5-6, 2007

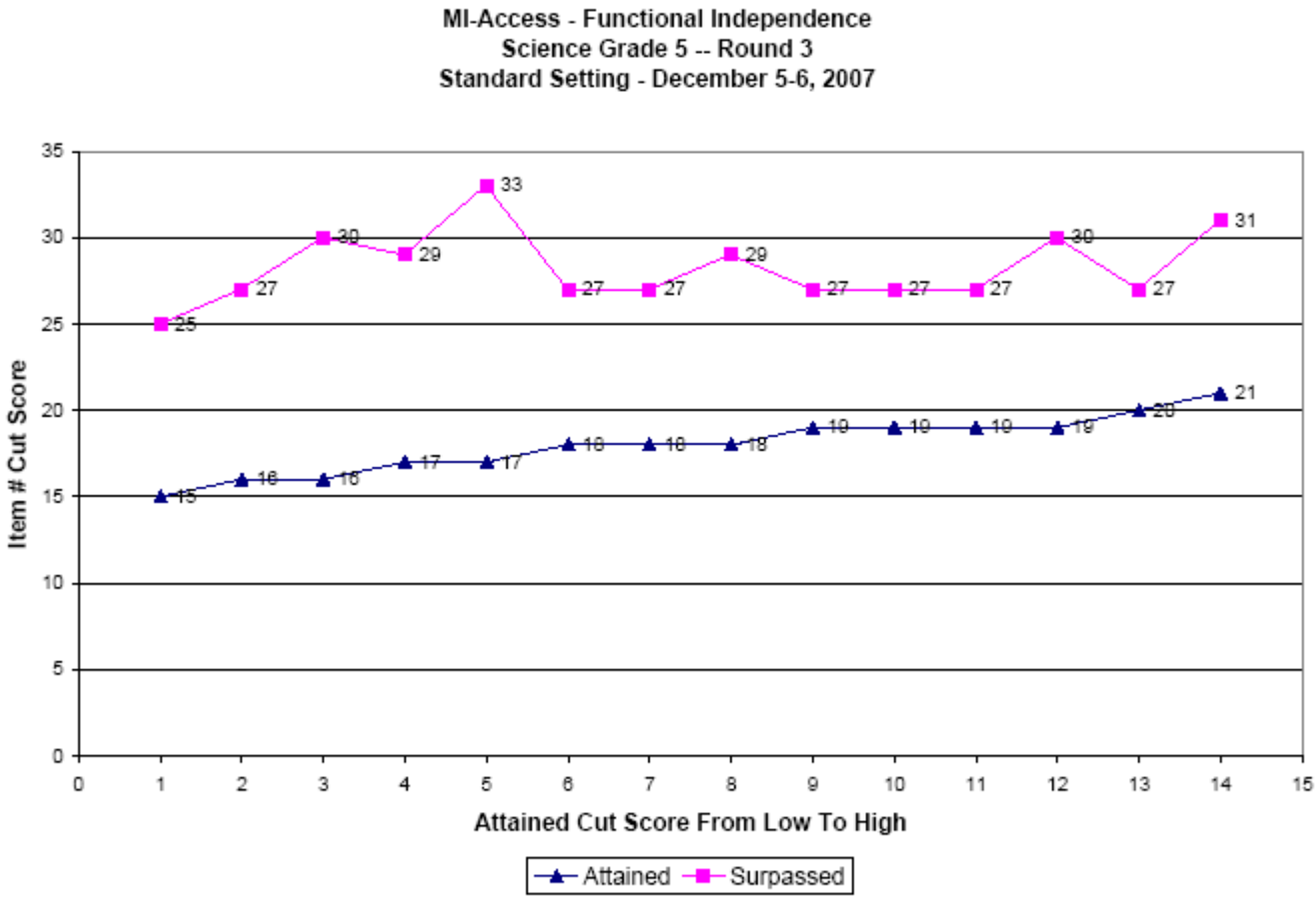



MI-Access - Supported Independence
Science Grade 5 -- Round 3
Standard Setting - December 5-6, 2007
Frequency
0
1
2
3
4
5
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
Item # Cut Scores
Attained
Surpassed
Medians: Attained = 38, Surpassed = 62

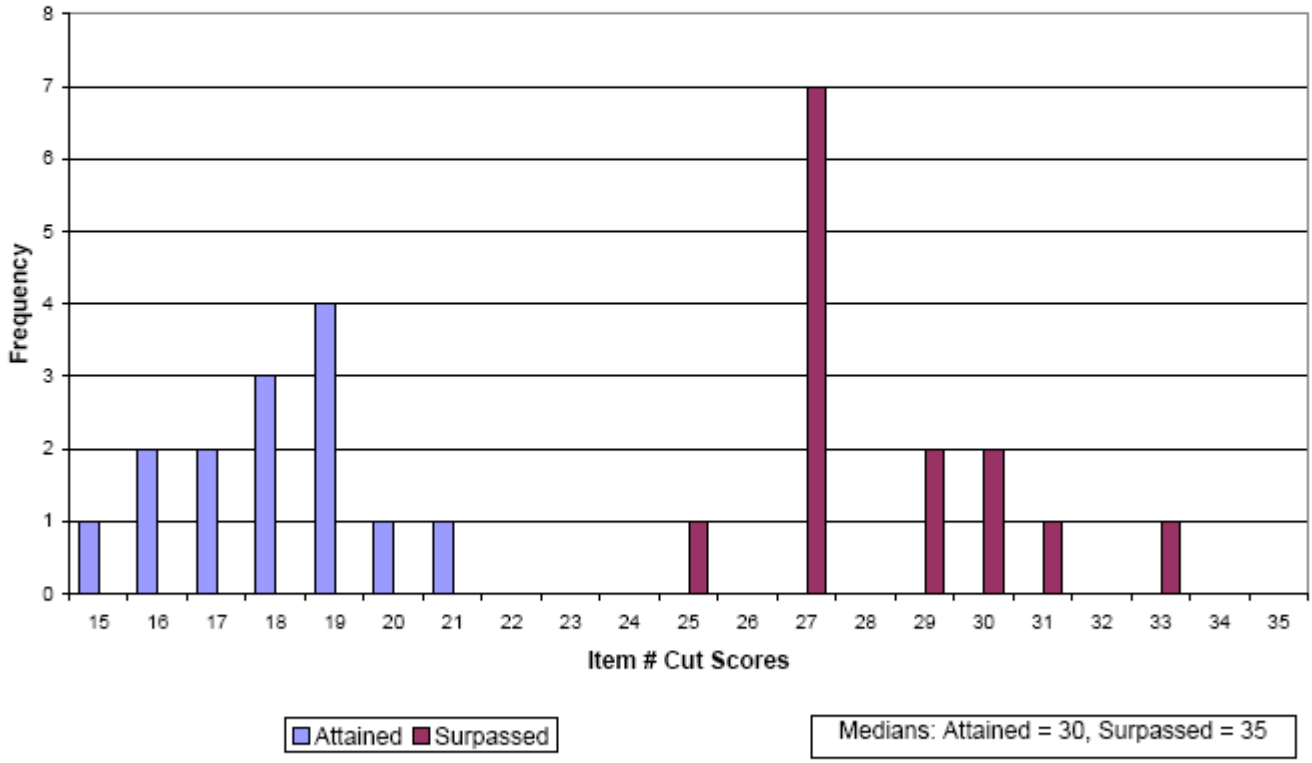
MI-Access - Supported Independence
Science Grade 8 -- Round 3
Standard Setting - December 5-6, 2007



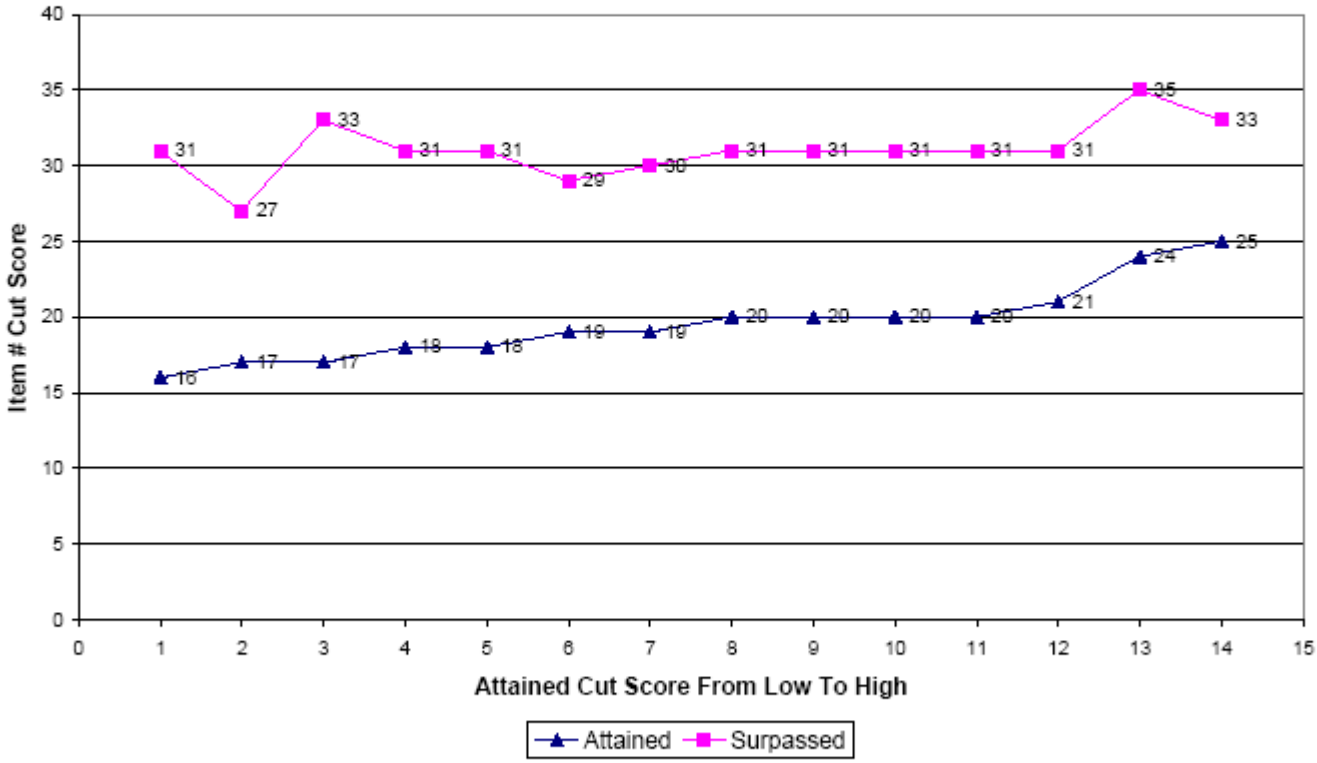

MI-Access - Supported Independence
Science Grade 8 -- Round 3
Standard Setting - December 5-6, 2007
Frequency
0
1
2
3
4
5
6
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62
Item # Cut Scores
Attained
Surpassed
Medians: Attained = 39, Surpassed = 58

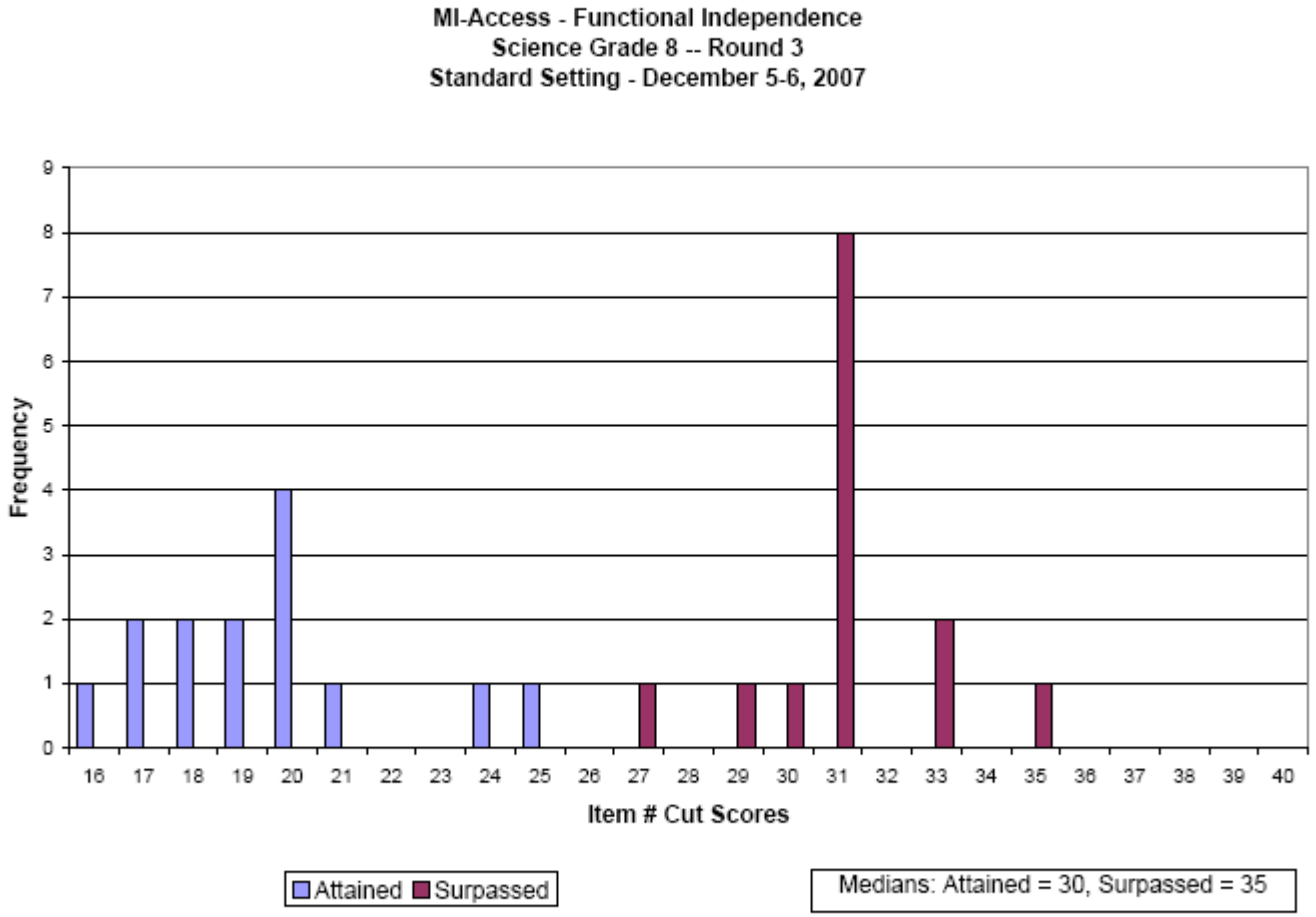

MI-Access - Functional Independence
Science Grade 5 -- Round 3
Standard Setting - December 5-6, 2007
Item # Cut Score
Attained Cut Score From Low To High
Attained
Surpassed
25
27
30
29
33
27
27
29
27
27
27
30
27
31
15
16
16
17
17
18
18
18
19
19
19
19
20
21

MI-Access - Functional Independence
Science Grade 5 -- Round 3
Standard Setting - December 5-6, 2007



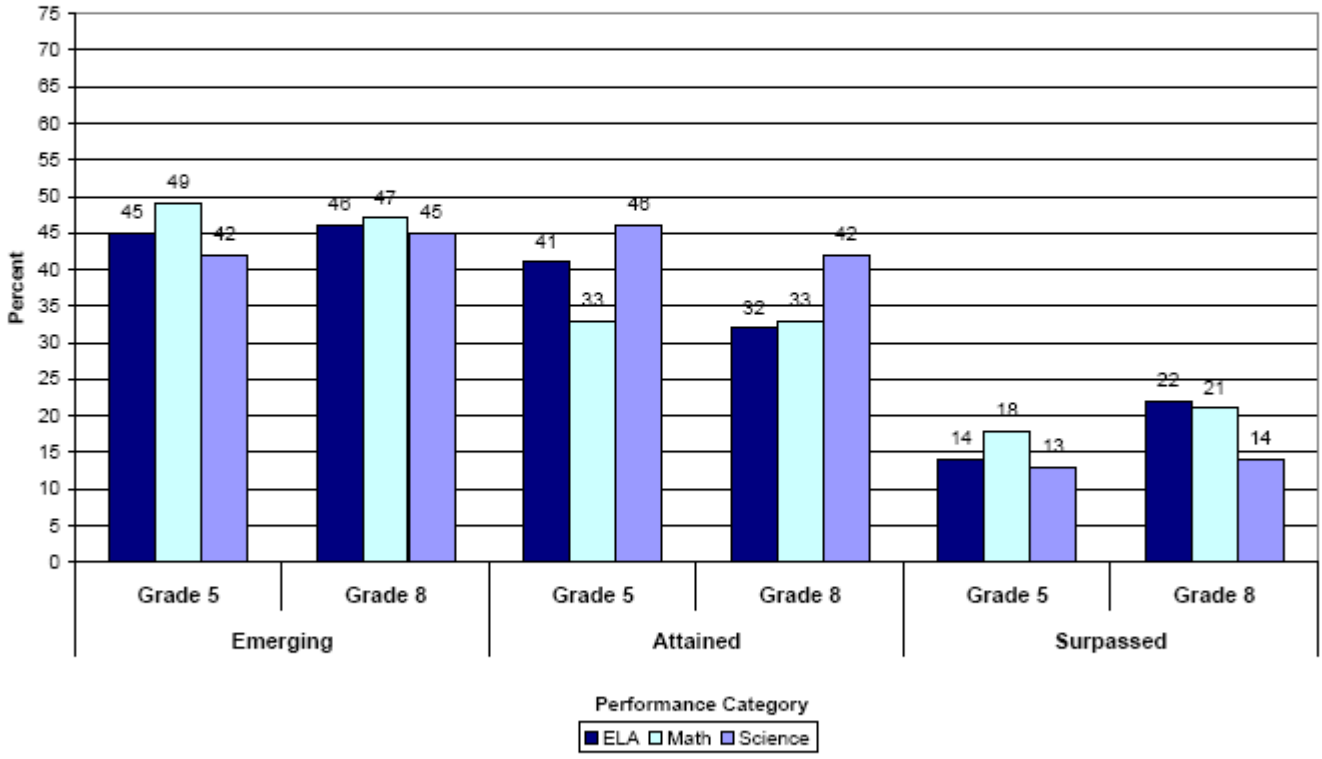
MI-Access - Functional Independence
Science Grade 8 -- Round 3
Standard Setting - December 5-6, 2007



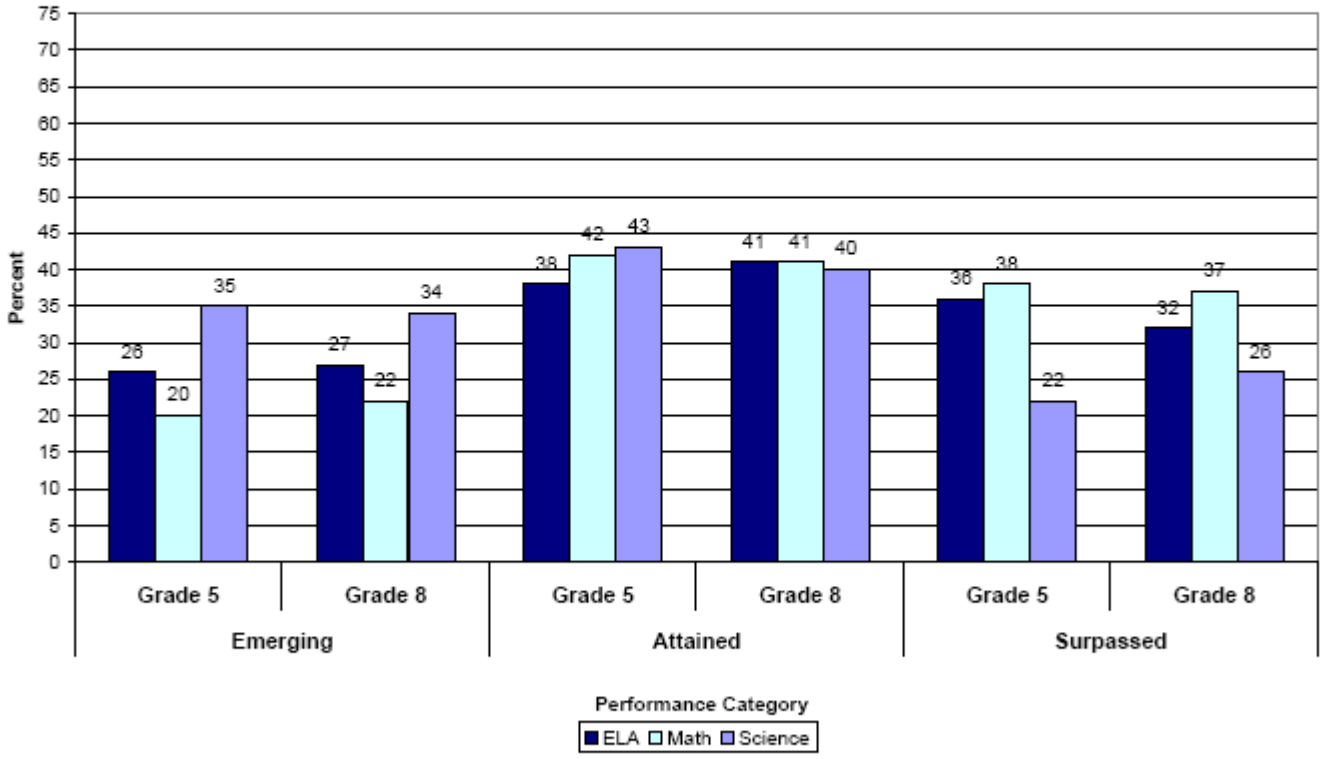


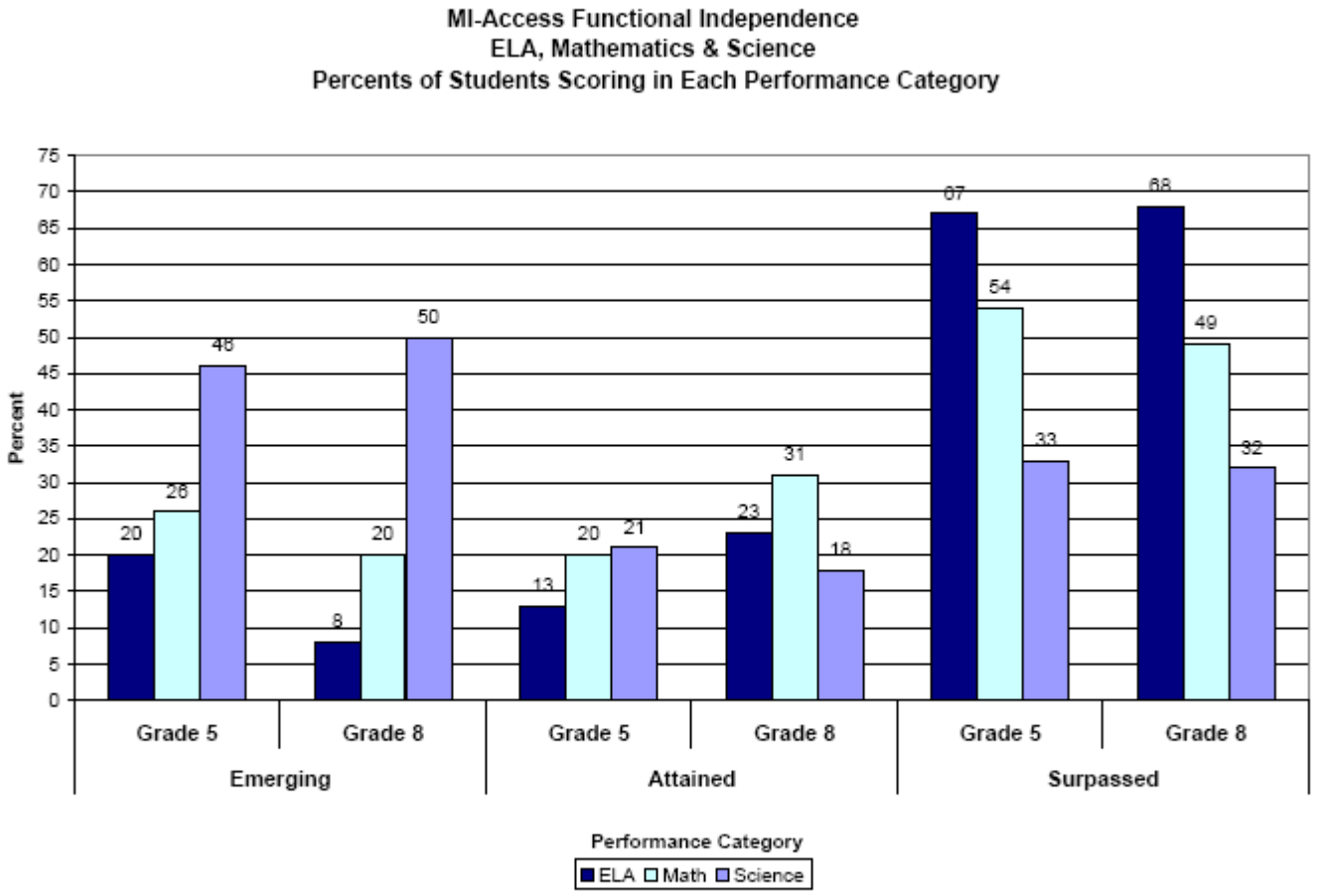
Appendix H - Summary of Percents by Category

MI-Access Participation
ELA, Mathematics & Science
Percents of Students Scoring in Each Performance Category



MI-Access Supported Independence
ELA, Mathematics & Science
Percents of Students Scoring in Each Performance Category





Appendix I – Panelist Evaluations

Assessments Standard-Setting Sessions
Functional Independence, Participation and Supported Independence
Science Grades 5 and 8
December 5th and 6th 2007

42 TOTAL EVALUATIONS

Please share with us your feedback about the standard-setting process, activities, and outcomes. Your feedback will help OEAA evaluate the training, methods, materials, and results of the sessions. Please do not put your name on the form, as your feedback should be anonymous. Place an **X** under the response option that best reflects your opinions related to each statement below.

1. Indicate the level of success of various components of the standard-setting session in which you participated.

Component	Not Very Successful	Partially Successful	Successful	Very Successful
a) Introduction to the *MI-Access* Assessments		1 (3%)	22 (52%)	19 (45%)
b) Standard-setting process intro. – Large group		1 (3%)	21 (51%)	19 (46%)
c) Performance Level Descriptor review			24 (57%)	18 (43%)
d) Standard-setting orientation – Small group		3 (7%)	23 (56%)	15 (37%)
e) Group discussions of the panel		3 (7%)	18 (43%)	21 (50%)
f) Data presentations before Rounds 2 & 3			20 (48%)	22 (52%)

2. Indicate the importance of each of these factors in making your cut-score recommendations.

Component	Not Very Important	Somewhat Important	Important	Very Important
a) Performance Level Descriptors		8 (20%)	14 (34%)	19 (46%)
b) Your perception of the assessment's difficulty		5 (12%)	19 (45%)	18 (43%)
c) Your own professional experiences		4 (10%)	12 (29%)	25 (61%)
d)Your initial judgments (Round 1)	1 (2%)	17 (40%)	16 (37%)	9 (21%)
e) Group discussions of the panel		3 (7%)	16 (38%)	23 (55%)
f) Feedback data provided to the panel			14 (34%)	27 (66%)
g) Policy environment in the state	4 (10%)	13 (32%)	11 (27%)	13 (32%)
h) What students would *vs.* should be able to do		1 (2%)	10 (24%)	30 (73%)

3. I understood the task of recommending performance standards when I did my work for:

	Not Very Well	Moderately Well	Very Well

a) Round 1	5 (12%)	23 (55%)	14 (33%)
b) Round 2		6 (14%)	36 (86%)
c) Round 3		1 (3%)	39 (97%)

4. I understood the data that were provided to the panel prior to:

	Not Very Well	**Moderately Well**	**Very Well**
a) Round 2	1 (2%)	10 (24%)	30 (73%)
b) Round 3		4 (10%)	37 (90%)

5. How confident are you with your *personal* classification of students at each level of proficiency?

Performance Level	**Not Confident**	**Somewhat Confident**	**Confident**	**Very Confident**
a) Surpassed the Standard		1 (2%)	18 (43%)	23 (55%)
b) Attained the Standard		2 (5%)	22 (52%)	18 (43%)
c) Emerging Towards the Standard		2 (5%)	22 (52%)	18 (43%)

6. What strategies did you use to recommend *MI-Access* performance levels?
   - Input from other professionals and my own experience plus the data
   - Prior knowledge and knowledge of benchmarks
   - Thought about "emerging" kids at the beginning. Then considered ability of "attained" students.
   - I thought about the students I teach. I thought about the material I teach. I thought about the material I need to teach. I looked at the extended benchmarks and EGLCEs.
   - I used my knowledge of students that I work with what level would a non-disabled child know this item at, and the curriculum that is there for the students to obtain the information.
   - My knowledge base as teacher of MoCi students, ages 12-16 for over 35 years. Data given group regarding how students performed on items state wide. My experience administering assessment since beginning.
   - 1) Student would vs. should. 2) Scores. 3) Item score points. 4) Achievement.
   - Thought about my students (ASD) and the students I also work with-CI.
   - Group discussion.
   - Looked at how deep it was into the book and then looked at were the other placement were in the rest of the book.
   - A variety of strategies-feedback, prior knowledge of SI populations, discussions, some data. I really tried to take a holistic approach.
   - Basic consideration of PLDs and item review booklet. When given data to support how students performed as well as scoring rubric were essential in my determination.
   - No changes.
   - Don't look at vocabulary; look at concepts and higher level thinking type of skills.
   - I based the cuts on difficulty of the P-value questions for such things as content, recall, prior knowledge and multi-step problems.
   - Personal experience and panel discussion.
   - Multi-step questions-A & S level, only Voc only E & A level.
   - Evaluation-discussion
   - Bloom's taxonomy
   - Looking at the EBs and deciphering between what students should know; ignoring vocabulary concerns.
   - Keeping in mind what a typical student looked like was very helpful in the process.
   - Past sessions; standard setting, my personal experiences, instruction in these areas.
   - Knowledge of students, personal experience, overall data, consideration of zero data numbers.
   - I looked for scores that were between 4-6, and then the degree of difficulty of the question/task.
   - Scores and test items.
   - Stay with one test at a time. It's very confusing to skip around.

- I used question difficulty vs. score on item.
- Nothing
- Pt scores, item content, assistance needed.
- It was very helpful listening to the "experts" those actually teaching P students.
- I used strategies of determining the frequency of the scores, the item on the assessment and based upon what my peers were saying for each item (rationale).
- Mostly I considered what we should be expecting our students to demonstrate.

7. Please provide feedback regarding the hotel accommodations and meeting facilities.
   - Great
   - Beautiful
   - Good food
   - I enjoyed the hotel accommodation and meeting facilities. I miss not being able to smoke in my room, but I survived.
   - The room was very nice and area was quiet for sleeping. The meeting rooms the first day were cold. I really liked the fact that the fitness center was open 24 hours, it made it very convenient to use the equipment and not have to wait for availability.
   - Did not stay at hotel. I drove. The meeting facility was fine.
   - Very good.
   - Very nice.
   - Marriott-As always, excellent accommodations.
   - Great.
   - The meeting facilities and food were wonderful. The rooms for accommodations were poorly lit and decorations were quite depressing. Wonderful service and hospitality though.
   - I stayed at hotel off-site, specifically the Marriott. Accommodations were appropriate meeting rooms at Kellogg were also adequate.
   - Met expectations, would stay here by choice.
   - The hotel accommodations were nice, but a bit small. The meeting facilities were very nice, food was excellent. Enjoyed lunch on day one vs. day two.
   - Excellent.
   - Marriott was much nice. Kellogg Center was fine though.
   - Great except being moved second day.
   - Great.
   - Excellent choice.
   - Hotel-excellent except room was not cleaned before 3:30 p.m. when I returned to the room.
   - Very nice.
   - Great-did not stay.
   - Excellent
   - Excellent
   - Great.
   - Great
   - The hotel/meeting room accommodations were good. Meeting rooms were cold and somewhat cramped, but overall, it was enjoyable.
   - Everything was fine.
   - Excellent
   - I had a great experience at the Kellogg Center.
   - Great.
   - Good, when the weather is cold it's nice to stay in the meeting facility. All the staff at the Kellogg Center were friendly and helpful.
   - Great-Love the bathroom "spa" feeling and the beige, thick towels. Why isn't there a Starbucks on campus/across the street?
   - Great
   - The hotel was really nice. I was concerned about the floor in the room. There were several areas with stairs and the shower curtain had mildew developing.
   - Great-Thank you.

8. On a scale of 1-10, how would you rate the meals provided during the meeting? Please comment on anything that you enjoyed and/or feel that could have been improved.

- Great
- #10
- #8
- The meals were excellent. I would rate them a 10.
- 9-The food was very good and there was a good variety to meet everyone's dietary needs/wants.
- Meals-7. Appreciated healthy choices.
- Very good.
- 7-8-Salads were cold for Thursday.
- The meals were great. Hospitality was wonderful.
- First day 10. Second day 8.
- I feel everything was explained and presented in a manner to that could be understood.
- Snacks could be more nutritious, and the meals were good.
- #10
- 10-The meals were wonderful. Food was great, a nice variety and good selections and choice to choose from. Enjoyed day 1 over day two.
- #9
- #9, great vegetarian options.
- #8, were the beef.
- #9
- #10-I especially appreciated the croissant added to the continental breakfast.
- 9 to 10
- #9
- #7
- #8
- 8/9 – Buffet style can be dropped.
- #8
- #10
- No snack.
- Day 1 there were great choices for lunch. Cookies were gone when we were ready to break and not replenished. Also, glasses were dirty, and meeting rooms were not stocked with ice. Day 2 the lunch was not very good-the soup was good but the salad was just ok. Breakfast was just so so both mornings.
- #7-pretty good.
- Excellent meals.
- #8-I enjoyed the pasta and chicken
- #8
- #10
- Meals were fine, even though I'm not a salad person. How about a choice of soups for day 2? I'm not a broccoli fan.
- #8
- #9-Great.

9. Use the space below to make any additional comments about the process or your experience. **Thank you for taking the time to evaluate the sessions.**

- Well, I had Mike as a facilitator. We had fun. Should be enough said, eh?
- I believe a few of the discussions were overkill. After all, we are professionals who have knowledge about these topics. I do understand that we all need to have a very clear understanding of what is expected of us, therefore perhaps the discussions were necessary.
- I really enjoyed this. Please feel free to invite me again and again. I always gain a lot in how to better prepare my students.
- This was a great learning experience for me. I was very glad I did this and would gladly do it again.
- This was great.
- Thank you for including me in this standard setting panel.
- This was very well organized.
- Thank you for having me. I learned a lot and I enjoyed the process.
- Great facilitator, Mike Beck.
- Meaningful.
- Enjoyed the process. Would enjoy doing this again.
- I look forward to doing this again.
- As always, a professional group and an enjoyable experience.
- Excellent
- Thank you
- I always enjoy this process.
- As an administer it really helps with in-service ideas.
- Great
- There is a need for consistency in using the assessment giving assessment. There are no “standards” for giving-too much personal interpretations.
- Interesting process.
- 1st day the changing terminology used by the facilitator, trying to explain the mapping booklet left must of us very confused for a long time.
- A couple of the panel members talked in side-bar conversations throughout-very distracting. Mike did his best to discourage this but unfortunately was ignored. There was also some negativity with regard to the presenter voiced by the same panel members which caused (or seemed to) others including myself, to feel slightly uncomfortable with voicing opinions. Mike Beck did a great job presenting.

Appendix J – Summary Data on Assessments

Summary Raw-Score Data for Fall 2007 Statewide Administration of the Participation, Supported Independence, and Functional Independence Assessments by Grade

Test Level	Subject	Grade	N students	Max Points	Mean	Std. Dev.
P	Science	5	265	90	36.4	29.5
P	Science	8	274	90	35.8	30.0
SI	Science	5	471	68	43.8	19.0
SI	Science	8	542	68	43.7	16.8
FI	Science	5	2105	35	20.2	5.3
FI	Science	8	2130	40	20.9	5.7

Appendix K – Item Data

MI-Access Fall 2007 Core Item Difficulty Analysis
Participation Science - Grade 5
Number of Students = 265

Sequence #	Activity	Score Point	Pct. Scored At or Above	Sequence #	Activity	Score Point	Pct. Scored At or Above
1	4	1	57.4	46	2	2	40.8
2	4	2	57.4	47	4	6	40.8
3	5	1	56.6	48	5	5	40.0
4	5	2	56.2	49	12	3	40.0
5	9	1	55.5	50	15	4	40.0
6	9	2	55.1	51	20	1	39.2
7	17	1	54.3	52	9	5	38.5
8	4	3	54.0	53	20	2	38.5
9	17	2	53.6	54	5	6	37.7
10	5	3	53.2	55	12	4	37.7
11	16	1	53.2	56	14	3	37.4
12	4	4	52.8	57	9	6	36.6
13	16	2	52.8	58	14	4	36.6
14	5	4	51.3	59	2	3	36.2
15	3	1	50.6	60	3	5	35.8
16	3	2	49.8	61	2	4	35.5
17	7	1	49.8	62	6	1	35.1
18	9	3	49.8	63	10	5	35.1
19	10	1	49.8	64	6	2	34.7
20	10	2	49.8	65	7	5	34.7
21	9	4	49.4	66	3	6	34.3
22	7	2	49.1	67	16	5	34.0
23	15	1	48.7	68	7	6	33.6
24	17	3	48.3	69	10	6	33.2
25	15	2	47.9	70	16	6	32.8
26	1	1	47.2	71	17	5	32.8
27	1	2	47.2	72	17	6	31.3
28	3	3	47.2	73	15	5	30.9
29	16	3	47.2	74	1	5	29.8
30	3	4	46.8	75	6	3	29.8
31	17	4	46.8	76	20	3	29.1
32	10	3	46.0	77	14	5	28.7
33	7	3	45.7	78	15	6	28.7
34	10	4	45.3	79	6	4	28.3
35	16	4	45.3	80	1	6	27.9
36	12	1	44.5	81	14	6	26.8
37	7	4	44.2	82	20	4	26.8
38	12	2	44.2	83	12	5	24.9
39	2	1	43.0	84	2	5	23.4
40	1	3	42.3	85	12	6	23.4
41	4	5	42.3	86	2	6	22.6
42	14	1	42.3	87	6	5	21.5
43	14	2	41.9	88	6	6	20.0
44	15	3	41.5	89	20	5	18.1
45	1	4	41.1	90	20	6	16.6

MI-Access Fall 2007 Core Item Difficulty Analysis

Participation Science - Grade 8

Number of Students = 274

Sequence #	Activity	Score Point	Pct. Scored At or Above
1	20	1	59.5
2	20	2	59.5
3	3	1	55.5
4	3	2	54.7
5	20	3	54.7
6	1	1	54.4
7	20	4	54.0
8	1	2	53.6
9	14	1	52.9
10	14	2	52.2
11	9	1	50.4
12	9	2	50.0
13	4	1	49.6
14	1	3	49.3
15	3	3	49.3
16	4	2	48.9
17	1	4	48.5
18	3	4	48.2
19	7	1	47.1
20	2	1	46.7
21	2	2	46.7
22	7	2	46.7
23	14	3	46.7
24	4	3	46.0
25	4	4	45.6
26	10	1	45.6
27	10	2	45.6
28	14	4	45.3
29	9	3	44.9
30	9	4	43.8
31	2	3	42.7
32	10	3	42.7
33	2	4	42.3
34	10	4	42.3
35	7	3	42.0
36	5	1	41.2
37	7	4	41.2
38	6	1	40.9
39	20	5	40.9
40	20	6	40.5
41	3	5	40.1
42	5	2	40.1
43	6	2	39.8
44	19	1	39.4
45	15	1	39.1
46	15	2	39.1
47	3	6	38.7
48	16	1	38.7
49	11	1	38.3
50	19	2	38.3
51	1	5	38.0
52	4	5	38.0
53	4	6	37.6
54	11	2	37.6
55	1	6	37.2
56	16	2	37.2
57	5	3	36.9
58	6	3	36.9
59	5	4	36.1
60	6	4	36.1
61	9	5	35.4
62	15	3	35.4
63	14	5	35.0
64	15	4	35.0
65	11	3	34.3
66	14	6	34.3
67	11	4	33.9
68	9	6	33.6
69	16	3	33.6
70	7	5	33.2
71	16	4	33.2
72	7	6	32.5
73	2	5	32.1
74	10	5	31.0
75	10	6	31.0
76	2	6	30.7
77	15	5	29.9
78	19	3	29.9
79	15	6	29.2
80	19	4	29.2
81	16	5	27.7
82	16	6	27.7
83	6	5	27.4
84	6	6	27.0
85	5	5	26.6
86	11	5	26.6
87	5	6	25.9
88	11	6	25.2
89	19	5	19.0
90	19	6	17.9

MI-Access Fall 2007 Core Item Difficulty Analysis
Supported Independence Science - Grade 5
Number of Students = 471

Sequence #	Activity	Score Point	Pct. Scored At or Above
1	6	1	80.3
2	5	1	80.0
3	6	2	79.6
4	5	2	79.0
5	3	1	77.7
6	3	2	76.9
7	14	1	75.8
8	4	1	75.6
9	1	1	75.4
10	4	2	74.9
11	14	2	74.9
12	1	2	74.1
13	15	1	73.9
14	15	2	73.7
15	22	1	72.8
16	7	1	72.4
17	18	1	72.4
18	7	2	72.0
19	18	2	71.5
20	22	2	71.5
21	6	3	70.1
22	19	1	70.1
23	19	2	69.0
24	21	1	69.0
25	6	4	68.4
26	21	2	67.9
27	12	1	67.7
28	5	3	67.5
29	12	2	67.3
30	4	3	66.7
31	5	4	66.2
32	4	4	65.2
33	3	3	65.0
34	8	1	64.5
35	15	3	64.5
36	15	4	63.5
37	3	4	63.3
38	8	2	63.3
39	1	3	62.8
40	1	4	62.6
41	14	3	62.6
42	2	1	62.0
43	14	4	61.8
44	18	3	61.8
45	22	3	61.6
46	7	3	61.1
47	22	4	60.9
48	2	2	60.7
49	7	4	60.7
50	18	4	60.7
51	12	3	58.0
52	21	3	57.7
53	12	4	57.1
54	17	1	56.9
55	21	4	56.9
56	17	2	56.7
57	19	3	56.3
58	19	4	54.1
59	10	1	53.5
60	8	3	53.1
61	10	2	52.4
62	8	4	51.6
63	17	3	48.8
64	17	4	48.0
65	2	3	47.8
66	2	4	47.8
67	10	3	42.0
68	10	4	41.2

MI-Access Fall 2007 Core Item Difficulty Analysis

Supported Independence Science - Grade 8

Number of Students = 542

Sequence #	Activity	Score Point	Pct. Scored At or Above
1	12	1	86.3
2	12	2	85.2
3	19	1	85.2
4	19	2	84.5
5	4	1	84.3
6	4	2	83.9
7	2	1	83.6
8	8	1	83.2
9	8	2	82.7
10	2	2	82.5
11	18	1	80.6
12	18	2	79.5
13	15	1	77.7
14	15	2	77.1
15	4	3	74.5
16	4	4	73.8
17	12	3	73.1
18	2	3	72.9
19	12	4	72.7
20	1	1	72.3
21	2	4	72.0
22	1	2	71.8
23	8	3	71.6
24	8	4	71.4
25	21	1	71.4
26	19	3	71.2
27	21	2	71.2
28	19	4	70.3
29	7	1	68.3
30	3	1	67.9
31	18	3	67.7
32	7	2	67.5
33	3	2	67.0
34	15	3	66.1
35	18	4	65.9
36	14	1	65.7
37	15	4	65.5
38	22	1	65.5
39	14	2	64.9
40	22	2	64.6
41	1	3	60.5
42	17	1	60.5
43	21	3	60.3
44	1	4	59.6
45	17	2	59.6
46	21	4	58.7
47	7	3	55.5
48	7	4	54.8
49	5	1	54.2
50	5	2	53.7
51	3	3	53.5
52	3	4	52.4
53	22	3	52.2
54	10	1	51.8
55	22	4	51.7
56	10	2	51.1
57	14	3	50.6
58	14	4	50.2
59	17	3	49.8
60	17	4	49.3
61	6	1	44.8
62	6	2	44.3
63	5	3	43.7
64	5	4	42.1
65	10	3	40.0
66	10	4	39.3
67	6	3	30.3
68	6	4	29.5

MI-Access December 6-7, 2007 Standard Setting
Functional Independence Science Grade 5
Item Statistics Table

Item Order #	Item Number	P-value
1	40	0.91
2	41	0.91
3	42	0.87
4	1	0.81
5	14	0.78
6	27	0.74
7	39	0.74
8	2	0.72
9	37	0.72
10	3	0.70
11	16	0.70
12	18	0.68
13	21	0.66
14	38	0.64
15	20	0.64
16	31	0.58
17	12	0.58
18	11	0.53
19	30	0.52
20	33	0.51
21	19	0.50
22	5	0.49
23	25	0.48
24	4	0.48
25	15	0.48
26	10	0.47
27	26	0.42
28	24	0.41
29	36	0.40
30	22	0.40
31	29	0.38
32	6	0.37
33	7	0.32
34	28	0.27
35	32	0.25

MI-Access December 6-7, 2007 Standard Setting
Functional Independence Science Grade 8
Item Statistics Table

Item Order #	Item Number	P-value
1	8	0.87
2	3	0.77
3	5	0.75
4	4	0.71
5	17	0.66
6	15	0.64
7	2	0.64
8	36	0.63
9	12	0.63
10	13	0.62
11	19	0.60
12	41	0.60
13	16	0.59
14	34	0.58
15	21	0.58
16	27	0.57
17	43	0.57
18	7	0.57
19	46	0.55
20	24	0.53
21	9	0.52
22	28	0.52
23	47	0.52
24	39	0.51
25	33	0.51
26	45	0.49
27	23	0.49
28	25	0.49
29	6	0.47
30	14	0.47
31	42	0.45
32	50	0.45
33	38	0.42
34	32	0.38
35	29	0.38
36	20	0.34
37	22	0.32
38	1	0.29
39	30	0.24
40	48	0.17

Appendix L – Panelists

Confirmed	First	Last	Title	District	Ethnicity	Region	Gender	Group
Y	Larry	Timm	Special Education Teacher	Midland	White, not of Hispanic origin	3	Male Male	FI-Grade 5-8
Y	Peg	Steeh	Special Education gym teacher SMI/SXI	Wing Lake - Bloomfield Hills	White, not of Hispanic origin	5	Female	PA-Grade 5-8
Y	Bridgit	Sova	Teacher of the Cognitive Impaired	Midland Public Schools	White, not of Hispanic origin	3	Female	SI-Grade 5-8
Y	Darlene	Heard-Thomas	Parent/Advocate	The ARC of Western Wayne Co Inkster	Black, not of Hispanic origin	5	Female	SI-Grade 5-8
Y	Cheryl	Gilbert	Special Education Teacher	Birch Run Area Schools	White, not of Hispanic origin	3	Female	SI-Grade 5-8
Y	Sally	Shuster Shoff	Sp Ed Teacher	Barry	White, not of Hispanic Origin		Female	PA-Grade 5-8
Y	Brent	Barker	Educator	Holt Public Schools	White, not of Hispanic origin	4	Male Male	FI-Grade 5-8
Y	Ginny	Buckley	6th Grade Teacher	Holt Public Schools	White, not of Hispanic origin	4	Female	FI-Grade 5-8
Y	Rob	Buckley	Educator, 6th Grade	Holt Public Schools	White, not of Hispanic origin	4	Male Male	SI-Grade 5-8
Y	Shannon	Barker	Educator	Holt Public Schools	White, not of Hispanic origin	4	Female	PA-Grade 5-8
Y	Laura	Colligan	Elementary Teacher	Holt	White, not of Hispanic origin	4	Female	FI-Grade 5-8
Y	Tina	Atkins	Spec. Ed. Administrator	Kalamazoo RESA	White, not of Hispanic origin	2	Female	PA-Grade 5-8
Y	Brian	Plancsi	Director	Ottawa Area Center	White, not of Hispanic origin	4	Male	SI-Grade 5-8
Y	Lynette	Johnson-Timm	C.I. Teacher	Meridian Public Schools	White, not of Hispanic origin	3	Female	PA-Grade 5-8
Y	Diane	VanDam	Resource Room Teacher	Comstock Park	White, not of Hispanic origin	2	Female	FI-Grade 5-8
Y	Barbara	Whitmen	MI-Access Building Coordinator	Genesee ISD	White, not of Hispanic origin	3	Female	SI-Grade 5-8
Y	Pat	Gilcresti-Frazier	Acting Director	Flint Community Schools	Black, not of Hispanic origin	3	Female	FI-Grade 5-8
Y	Amanda	Lakso-Friedle	Spec Ed.	Webber Middle School - 4451	White, not of Hispanic origin	3	Female	PA-Grade 5-8
Y	Kimberly	Powers	Sp Ed Coordinator/Resource Teacher	Fortis Academy	White, not of Hispanic Origin	4	Female	FI-Grade 5-8
Y	Cynthia	George	ASD Teacher	Grand Rapids Public	White, not of Hispanic Origin	2	Female	PA-Grade 5-8
Y	Linda	Verhagen	ASD Teacher	Rockford Public Schools	White, not of Hispanic Origin	2	Female	SI-Grade 5-8
Y	Monica	SebastSen-Kadie	Teacher	Flint Community Schools	Black, not of Hispanic Origin	4	Female	PA-Grade 5-8
Y	Anita	Greenard	CI Teacher	Flint Community Schools	Black, not of Hispanic Origin	3	Female	SI-Grade 5-8
Y	Leslie	Christian	Teacher	Oakland	Hispanic	5	Female	PA-Grade 5-8
Y	Gail	Mellas	Program Administrator	Wyandotte City School District	White, not of Hispanic Origin	5	Female	PA-Grade 5-8
Y	Robin	Hammond	Sped Teacher	Midland County ESA	White, not of Hispanic Origin	3	Female	PA-Grade 5-8
Y	Gabrielle	Grimaldi	ASD Classroom Teacher	Midland	White, not of Hispanic Origin	3	Female	FI-Grade 5-8
Y	Greta	Brock	Sped Teacher	Boyne City Middle School	White, not of Hispanic Origin	1	Female	FI-Grade 5-8
Y	Jolene	Alexander-Richmon	Resource Teacher	Flint Community Schools	Black, not of Hispanic Origin	3	Female	PA-Grade 5-8
Y	Kimberly	Buscarino	CI Teacher	Carrollton Public Schools	White, not of Hispanic Origin	3	Female	SI-Grade 5-8
Y	Nicole	Huff	Curriculum Director	Detroit Community Elementary School	Black, not of Hispanic Origin	5	Female	FI-Grade 5-8
Y	Julie	Bontreger	Special Education/Case Manager	Three Rivers	White, not of Hispanic Origin	2	Female	FI-Grade 5-8
Y	Charles	Richards	Teacher Consultant	Genesee ISD	White, not of Hispanic Origin	3	Male	PA-Grade 5-8
Y	Melissa	Morton	Sped Teacher	Lenawee ISD	White, not of Hispanic Origin	4	Female	SI-Grade 5-8
Y	Linda	Heck	Sped Science Teacher	Flint Community Schools	White, not of Hispanic Origin	3	Female	FI-Grade 5-8
Y	Rachel	Bracey	SCI Teacher	Bloomfield Hills		5		SI-Grade 5-8
Y	Eric	Bourque	CI Teacher	Lake Orion	White, not of Hispanic Origin	5	Male	FI-Grade 5-8
Y	Gregory	Hill	Sped Teacher	Flint Community Schools	White, not of Hispanic Origin	3	Male	PA-Grade 5-8
Y	Patricia	Langworthy	Sped Supervisory	Morley Stanwood Community Schools	White, not of Hispanic Origin	2	Female	SI-Grade 5-8
Y	Douglas	Montgomery	Sped Director	East China School District	White, not of Hispanic Origin	3	Male	FI-Grade 5-8
Y	Sarah	Hoeks	CI Classrcom	Flint Community	White, not of Hispanic Origin	3	Female	PA-Grade 5-8
Y	Marcella	Carlson	Sped Teacher	Superior Central	White, not of Hispanic Origin	5	Female	SI-Grade 5-8
NO	Greg	Morris	Sped Director	Jenison	White, not of Hispanic Origin	2	Male	FI-Grade 5-8
Y	Cynthia	Hind	Transition Coordinator	Oxford Area Community Schools	White, not of Hispanic Origin	5	Female	SI-Grade 5-8

Staff		
Y	Jamie	Dumser
Y	Alison	Place
Y	Carol	Allman
Y	Sheila	Potter
Y	Jeff	Slinde
Y	Mike	Beck
Y	Peggy	Dutcher
Y	Vince	Dean
Y	Angela	Dalhoe
Y	Janet	Lower
Y	Callie	Kepler

Appendix M – OEAA-Recommended Adjustments to Committee Recommendations and Impact of Adjustments

Subsequent to completion of the panels' Round 3 work, representatives of the *MI-Access* contractor, Questar, and OEAA met to review the final recommendations and the statewide impact data consequent to adopting these recommendations. It was the opinion of these reviewers that no adjustments should be made in the recommendations of the Participation or Supported Independence panels. While there are the typically seen irregularities across grade levels and content areas in these assessments, we believe that the panels' judgments were well-grounded and that the resulting data were reasonably consistent across areas and grades.

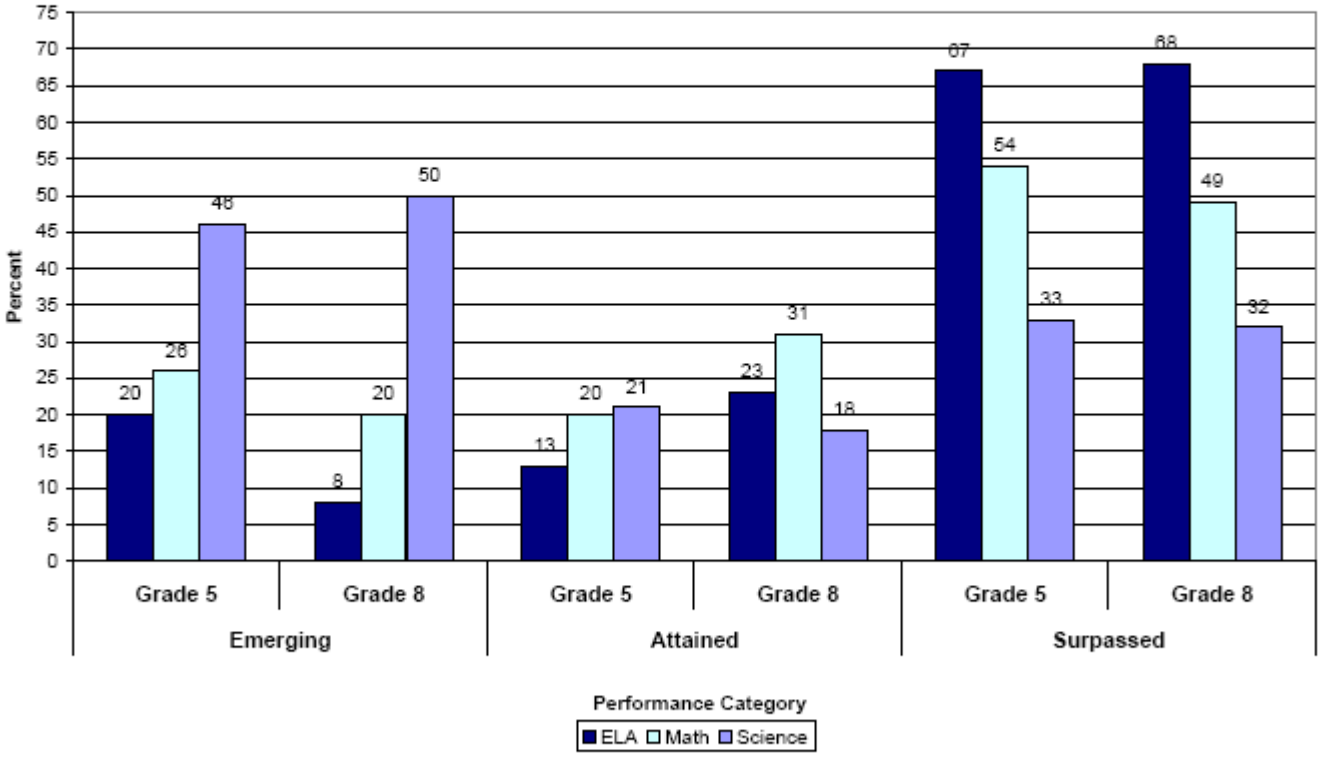
With respect to the Functional Independence assessments, the panel recommendations appeared to reviewers to reflect the reality of current achievement in the area of Science across the state with respect to the three performance levels. However, the ELA and Mathematics portions of the Functional Independence assessments yielded (as demonstrated in the Appendix **H** graphs) very high proportions of Attained and Surpassed students. In order to make the Science results correspond closer with those from the other content areas, small adjustments in the final panel recommendations were made. These adjustments are relatively minor; both were less than one composite standard error. These possible adjustments were considered by OEAA, OEAA's national TAC, and the state Board of Education before the adjusted cut scores were adopted.

The Board-approved adjustments are tabled below. The impacts of the possible adjustments are shown graphically in the following graph, which parallels the Functional Independence graph in Appendix **H**. The policy decision of OEAA and the State Board was that these adjusted data better reflect actual underlying Science performance than do the unadjusted recommendations of the panelists. Only the Surpassed standard for the Functional Independence assessments was modified from the final recommendations of the standards-setting panels.

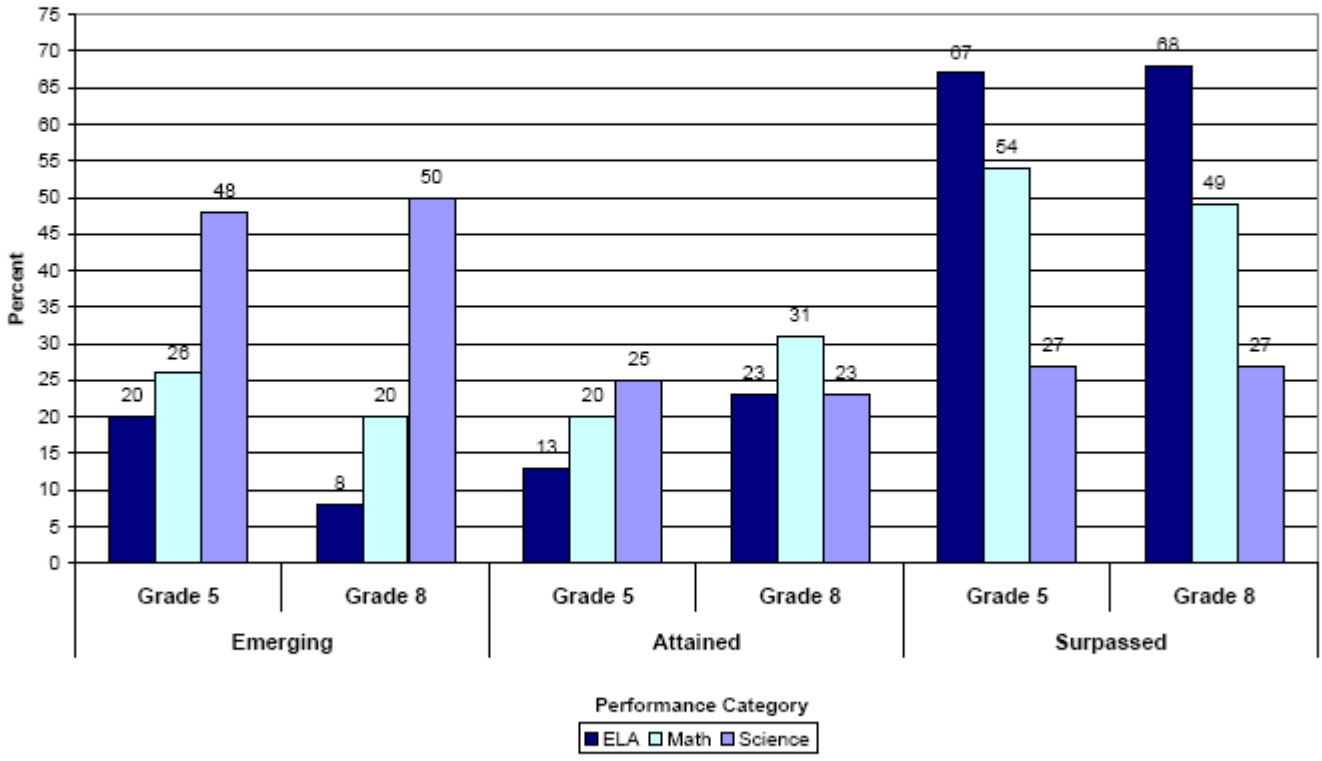
Functional Independence *Science Standards – Recommended Adjustments*

Grade	Performance Category	Cut Score Item Position	(Median) Raw Score	Statewide Percent of Students
5	Surpassed - *Panel Cut*	27	23	33%Surpassed
	Adjusted/Final	28	24	27%
8	Surpassed - *Panel Cut*	31	24	32%Surpassed
	Adjusted/Final	33	25	27%

MI-Access Functional Independence
ELA, Mathematics & Science
Percents of Students Scoring in Each Performance Category
Unadjusted Data From Appendix H



MI-Access Functional Independence
ELA, Mathematics & Science
Percents of Students Scoring in Each Performance Category
Result of Adjusting Judges' Median Cut Score For *Surpassed Only*



Appendix N

Rasch Measure / Item Difficulty Values for the *Functional Independence* Items by Grade

MI-Access December, 2007 Standard Setting
Functional Independence Science ***Grade 5***
Item Order Table

Seq	Item #	Name	Rasch Measure	Error
1	40	33033	-2.137	0.12
2	41	33048	-2.084	0.11
3	42	33043	-1.732	0.10
4	1	33075	-1.247	0.09
5	14	33483	-1.007	0.08
6	27	33440	-0.803	0.08
7	39	33024	-0.760	0.08
8	2	33415	-0.660	0.08
9	37	33011	-0.655	0.08
10	3	33408	-0.570	0.08
11	16	33490	-0.536	0.07
12	18	33434	-0.443	0.07
13	21	33064	-0.353	0.07
14	38	33021	-0.249	0.07
15	20	33060	-0.239	0.07
16	31	33568	0.015	0.07
17	12	33400	0.035	0.07
18	11	33087	0.262	0.07
19	30	33581	0.310	0.07
20	33	33579	0.343	0.07
21	19	33051	0.406	0.07
22	5	33389	0.458	0.07
23	25	33431	0.482	0.07
24	4	33381	0.497	0.07
25	15	33489	0.497	0.07
26	10	33086	0.540	0.07
27	26	33430	0.763	0.07
28	24	33429	0.808	0.07
29	36	33009	0.863	0.07
30	22	33417	0.873	0.07
31	29	33454	0.933	0.07
32	6	33396	0.979	0.07
33	7	33394	1.248	0.07
34	28	33445	1.517	0.08
35	32	33575	1.647	0.08

MI-Access December 6-7, 2007 Standard Setting

Functional Independence Science ***Grade 8***

Item Order Table

Seq.	Item #	Name	Rasch Measure	Error
1	8	33134	-1.965	0.10
2	3	33111	-1.165	0.08
3	5	33114	-1.057	0.08
4	4	33112	-0.877	0.07
5	17	33164	-0.592	0.07
6	15	33159	-0.528	0.07
7	2	33105	-0.514	0.07
8	36	33253	-0.451	0.07
9	12	33147	-0.446	0.07
10	13	33151	-0.398	0.07
11	19	33493	-0.342	0.07
12	41	33262	-0.313	0.07
13	16	33163	-0.285	0.07
14	34	33248	-0.244	0.07
15	21	33196	-0.207	0.07
16	27	33210	-0.197	0.07
17	43	33286	-0.197	0.07
18	7	33124	-0.184	0.07
19	46	33294	-0.078	0.07
20	24	33501	0.003	0.07
21	9	33136	0.022	0.07
22	28	33218	0.022	0.07
23	47	33297	0.058	0.07
24	39	33274	0.085	0.07
25	33	33244	0.094	0.07
26	45	33288	0.171	0.07
27	23	33499	0.180	0.07
28	25	33203	0.185	0.07
29	6	33141	0.248	0.07
30	14	33156	0.275	0.07
31	42	33278	0.335	0.07
32	50	33295	0.367	0.07
33	38	33266	0.505	0.07
34	32	33237	0.675	0.07
35	29	33220	0.680	0.07
36	20	33190	0.857	0.07
37	22	33494	0.954	0.07
38	1	33093	1.118	0.07
39	30	33225	1.370	0.08
40	48	33616	1.837	0.09